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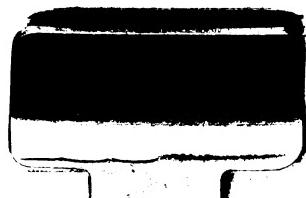
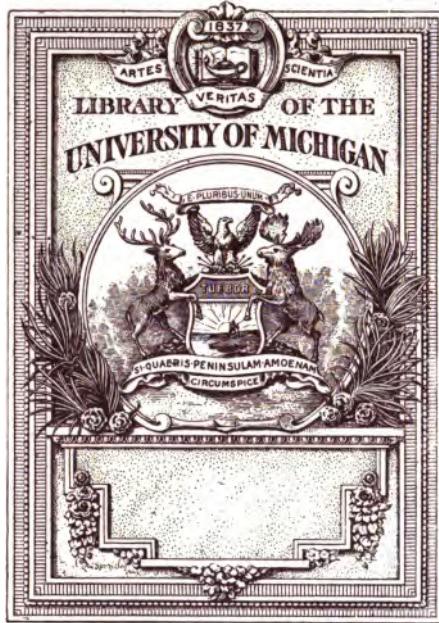
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TRANSACTIONS
OF THE
KANSAS
=
STATE HORTICULTURAL SOCIETY,
(ORGANIZED IN 1869.)

CONTAINING
THE PROCEEDINGS OF THE SUMMER MEETING IN IOLA, JUNE, 1896,
AND THE
ANNUAL MEETING IN TOPEKA, DECEMBER, 1891.

VOL. XXI.

EDITED BY THE SECRETARY, WILLIAM H. BARNES.
PUBLISHED BY THE STATE.



TOPEKA:
J. S. PARKS, STATE PRINTER.
1897.

LETTER OF TRANSMITTAL.

OFFICE OF THE KANSAS STATE HORTICULTURAL SOCIETY,
STATE CAPITOL, Topeka, Kan., July 1, 1897.

To His Excellency J. W. Leedy, Governor:

We have the pleasure to herewith submit to your careful consideration the twenty-first volume of the transactions of the Kansas State Horticultural Society, now in its thirty-second year of active usefulness. The volume is small—the least of all the reports of state departments—yet we believe every one of its 100 pages contains matter of practical utility to the horticulturists of our state.

Kansas is essentially a horticultural state, and if our citizens would use to best advantage her resources, she would soon become the garden among the states. We have 30 millions of the five leading varieties of fruit trees, and our people consume on their tables annually over 15 million dollars' worth of horticultural products—more in value than our annual yield of all the grains, excepting corn—and we should grow 95 per cent. of it. We hope the time is near when the table of every tiller of the soil will be loaded, three times a day, at his pleasure, with all the horticultural luxuries which our favored climate and fruitful soil will produce, and when canned and preserved fruits and vegetables from outside the state will not hold the most prominent place in our groceries; and when our citizens will demand Kansas products, and will take no other until ours are exhausted.

Missouri, Iowa, Minnesota, Michigan and Illinois kindly forward to us annually instructive reports of horticulture in their various states of 500 pages and upwards. I would remark that none of our reports are stored away in the cellars of the state capitol, the demand exceeding the supply by at least 75 per cent.

I am sorry to state that insect and fungus enemies are gaining ground in our state and are discouraging fruit-growing. The states are awakening to the necessity of legislating against these pests; and I believe it will be beneficial to call the attention of our next legislature to this matter, as we are in great danger from these destroyers.

Horticulture in Kansas will pay for greater state encouragement, and it is regretted that our late legislature did not encourage it to the full limit asked for. We believe no state appropriations bring better returns than those given to horticulture.

We earnestly hope that our work may meet with your approval, and that you will use your influence and encouragement as far as you consistently can to advance this—one of our great industries.

Respectfully submitted.

FRED. WELLHOUSE, *President.*

WILLIAM H. BARNES, *Secretary.*

FRUIT DISTRICTS.**First.**

ATCHISON. BROWN.	DONIPHAN. JACKSON.	JEFFERSON. LEAVENWORTH.	NEMAHA.
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Second.

ALLEN. ANDERSON.	BOURBON. DOUGLAS.	FRANKLIN. JOHNSON.	LINN. MIAMI.
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Third.

CHAUTAUQUA. CHEROKEE. COWLEY.	CRAWFORD. ELK.	LABELLE. MONTGOMERY.	NEOSHO. WILSON.
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Fourth.

BUTLER. CHASE. COFFEY..	GREENWOOD. LYON. MARION.	MORRIS. OSAGE. POTTAWATOMIE.	SHAWNEE. WABAUNSEE. WOODSON.
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Fifth.

CLAY. CLOUD. DICKINSON.	GEARY. MARSHALL. OTTAWA.	REPUBLIC. RILEY.	SALINE. WASHINGTON.
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Sixth.

CHEYENNE. DECATUR. ELLIS. ELLSWORTH. GOVE. GRAHAM.	JEWELL. LINCOLN. LOGAN. MITCHELL. NORTON. OsBORNE.	PHILLIPS. RAWLINS. ROOKS. RUSSELL. SHERIDAN.	SHERMAN. SMITH. THOMAS. TREGO. WALLACE.
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Seventh.

BARBER. BASTON. CLARK. COMANCHE. EDWARDS. FINNEY. FORD. GRANT. GRAY.	GREELEY. HAMILTON. HARPER. HARVEY. HASKELL. HODGEMAN. KEARNY. KINGMAN. KIOWA.	LANE. McPHERSON. MEADE. MORTON. NESS. PAWNEE. PRATT. RENO. RICE.	RUSH. SCOTT. SEDWICK. SEWARD. STAFFORD. STANTON. STEVENS. SUMNER. WICHITA.
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OFFICERS FOR 1897 and 1898.

President.

HON. FRED. WELLHOUSE,
1025 Topeka avenue, Topeka.

Vice-President.

HON. J. W. ROBISON,
El Dorado, Butler county.

Treasurer.

MAJ. F. HOLSINGER,
Roedale, Wyandotte county.

Secretary.

WILLIAM H. BARNES,
(to whom all communications should be addressed), State Capitol, Topeka.

STANDING COMMITTEES FOR 1897.

Nomenclature and New Fruits.

To present the merits and claims of new fruits, especially, worthy ones originating within the state; to designate the proper, and correct the improper, names of fruits, where necessary.

A. H. BUCKMAN, Topeka.
WILLIAM H. BARNES, Topeka.
B. F. SMITH, Lawrence.

Botany and Vegetable Physiology.

Anything in the educational line, as root growth, bud formation and growth, leafage, the effect of bud or graft on stock and root, the influence of stock or root upon bud or graft, bud variation, freaks, sports and abnormal growths.

MISS LUCY POPENOE, Berryton.
MRS. M. M. CARSON, Wellington.

Orchard Treatment.

To inform horticulturists as to the difference in quality of trees as grown (in nursery) upon different kinds of soil; effects of root pruning, the tree-digger, heel-in or keeping in cold storage, treatment in transportation to and setting out in orchard; also best winter protection from rabbits, mice, and climate.

W. D. CELLAR, Edwardsville.
A. L. BROOKE, North Topeka.
JAMES McNICOL, Lost Springs.

Forestry.

To study and report the best varieties of trees, including evergreens, and the best means of growing them for wind-breaks, shade, timber, and ornament, including a report on nut and wild-fruit trees.

G. M. MUNGER, Eureka.
J. W. ROBISON, El Dorado.

Insecticides and Fungicides.

Report on the chemicals now used and manner of mixing and applying same, and find if anything newer, cheaper, simpler or more effective has been or is liable to be discovered.

PROF. S. C. MASON, Manhattan.

WALTER WELLHOUSE, Topeka.

Vegetable Gardening.

Study and report on commercial value of vegetable products, new and old, and on the manner of growing, harvesting, packing and marketing green vegetables, touching on commission selling and faults of transportation.

F. TOMPKINS, North Topeka.
C. H. LONGSTRETH, Lakin.

Small Fruits.

To study and report on best varieties, new and old, and best methods of planting, cultivating, harvesting and marketing all small fruits.

J. F. CECIL, North Topeka.
F. W. DIXON, Holton.
A. CHANDLER, Argentine.

Handling Fruits, etc.

The best plans for handling, tallying and managing pickers in orchard, berry patch, and vegetable gardens. Best styles of barrels, baskets, boxes, crates, or other packages.

HON. EDWIN TAYLOR, Edwardsville.
B. F. SMITH, Lawrence.

Meteorology.

Give to the Society a condensed report of the climatic disturbances of the past year; the means of foretelling in a general way the approaching changes, with advice how to overcome or guard against their bad effects.

PROF. T. B. JENNINGS, Topeka.

Geology and Soils.

We shall be pleased if this committee will report what soils in our state are best adapted to the growth of horticultural products, and where these favorable soils are found; also, what soils should be avoided.

PROF. E. HAWORTH, Lawrence.

Vineyards.

Bring in a complete report of varieties for family and market, with information on propagation, planting, training, pruning, gathering, packing for market or the home; also, the unfavorable soils, conditions, diseases, and insects.

A. OBERNDORF, Centralia.

A. L. ENTSINGER, Silver Lake.

WILLIAM CUTTER, Junction City.

Suggestions for the Advancement of Horticulture.

This committee should be alive to the advancement of horticulture, and open up new lines of thought, pick up new ideas from the reports of other states, the literature of the day, and the advertisements and displays of tradesmen. Onward and upward must we go, in advance or fully abreast with the leaders in horticulture.

E. B. COWGILL, Topeka.

Standing Committees—Concluded.**Ornithology.**

What birds are beneficial and how to protect and encourage them; what birds to destroy and how to destroy them without scaring away the beneficial ones.

PROF. L. L. DYCHE, Lawrence.

Experimental Horticulture.

A report of the many horticultural experiments, as observed on the grounds of the Agricultural College and elsewhere.

PROF. S. C. MASON, Manhattan.

Needed Legislation.

Although this is an "off year" in politics, yet the actions of the late legislature plainly indicate that the work of this Society, its needs and possibilities, are not properly understood by the majority of our lawmakers. It is hoped that future legislators may fully realize that to produce our own supplies of fruits, vegetables and flowers savors of a wise economy, and is among our great possibilities and necessities; and a proper encouragement on these lines by legislative protection and appropriation is good sense and statesmanship. This committee can find plenty to do in studying the "needed legislation" for putting Kansas horticulture in the lead.

GEO. M. MUNGER, Eureka.

HON. EDWIN TAYLOR, Edwardsville.

HON. A. L. BROOKE, North Topeka.

Transportation.

H. L. NEWBERRY, Topeka.
WILLIAM H. BARNEs, Topeka.

Irrigation.

This committee can find plenty to do just now, as much by pointing out the rocks and shoals threatening shipwreck, as in any way. We hope they will be as wise and bold in condemning wrong, wasteful and weak plans and fixtures as in advising of good, strong, perfect and profitable methods.

C. H. LONGSTRETH, Lakin.

E. B. COWGILL, Topeka.

DR. G. BOHRER, Chase.

Keeping Fruits and Vegetables.

Examine and report on any process that will prolong the season of a fruit, either by bagging, drying, preserving, or in caves, or cold storage.

A. CHANDLER, Argentine.

F. HOLINGER, Rosedale.

GEO. RICHARDSON, Leavenworth.

Novelties in the Nursery Trade.

The title describes the duty of the committee, and it is hoped he will guard well the interests of Kansas horticulture against useless novelties.

E. J. HOLMAN, Leavenworth.

HORTICULTURAL SOCIETIES IN KANSAS.**STATE HORTICULTURAL SOCIETY.** Organized December 15, 1869.

President, Hon. Fred. Wellhouse, Topeka.	Trustee, W. S. Coley, Oswego.
Vice-Pres't, Hon. J. W. Robison, El Dorado.	" Geo. M. Munger, Eureka.
Treasurer, Maj. Frank Holsinger, Rosedale.	" William Cutter, Junction City.
Secretary, William H. Barnes, Topeka.	" Martin Mohler, Osborne.
Trustee, E. J. Holman, Leavenworth.	" Geo. W. Bailey, Wellington.
" B. F. Smith, Lawrence.	

ALLEN COUNTY.

Organized December 29, 1883.
President, A. L. Harmon.
Vice-President, Josiah Hogueland.
Secretary, B. F. Pancoast.
Treasurer, G. A. Bolus.
Post-office of all, Iola.

ALTAMONT SOCIETY.

Organized May 3, 1890.
President, Uriah Thomas.
Vice-President, C. E. Hildreth.
Secretary, Chas. Harrington.
Treasurer, A. J. Ross.
Post-office of all, Altamont.

ANDERSON COUNTY.

Organized February 27, 1896.
President, D. W. Houston.
Vice-President, H. L. Shields.
Secretary, Capt. L. D. Dobbs.
Post-office of all, Garnett.

ATCHISON COUNTY.

Organized April 28, 1897.
President, W. H. Tucker, Nortonville.
Vice-President, L. S. Hastings, Effingham.
Secretary, M. C. Klingman, Effingham.
Treasurer, Geo. McKay, Effingham.

BARBER COUNTY.

Organized December 19, 1896.
President, Dr. J. W. Stout, Medicine Lodge.
Vice-President, R. Lumpkin, Sharon.
Sec. and Treas., C. A. Blackmore, Sharon.

BROWN COUNTY.

Organized August 27, 1896.
President, Samuel Detwiler.
Vice-President, R. C. Chase.
Secretary, J. A. Hewitt.
Treasurer, W. E. Penny.
Post-office of all, Hiawatha.

BUTLER COUNTY.

Organized January 29, 1897.
President, William Snyder, Towanda.
Secretary, J. J. Johnson, El Dorado.

CHASE COUNTY.

Organized September 26, 1896.
President, E. B. Hunt, Cottonwood Falls.
Vice-President, M. W. Gilmore, Topeka.
Secretary, W. A. Waddell, Cottonwood Falls.
Treasurer, M. H. Lewis, Strong City.

COFFEY COUNTY.

Organized April 10, 1897.
President, D. P. Noe.
Vice-President, P. Cadwell.
Secretary, L. A. E. Clark.
Treasurer, J. W. Cook.
Post-office of all, Burlington.

DONIPHAN COUNTY.

Organized August 8, 1896.
President, E. J. Campbell, Highland.
Vice-President, R. H. Montgomery, Troy.
Secretary, A. Perry, Troy.
Treasurer, Geo. B. Smith, Troy.

DOUGLAS COUNTY.

Organized October 3, 1867.
President, J. S. McCombs.
Secretary, Samuel Reynolds.
Both at Lawrence.

ELK COUNTY.

Organized June 18, 1896.
President, S. D. Lewis Howard.
Vice-President, B. Crawford, Howard.
Secretary, D. C. Harkness, Howard.
Treasurer, Tom Jaggard, Chapin.

FRANKLIN COUNTY.

Organized February 17, 1877.
President, A. Willis.
Vice-President, V. N. Lester.
Secretary, Miss Mary E. Lester.
Treasurer, O. C. Gillett.
Post-office of all, Ottawa.

GEARY COUNTY.

Organized December 4, 1896.
President, William Cutter.
Vice-President, R. L. Kepperling.
Secretary and Treasurer, H. H. Brigham.
Post-office of all, Junction City.

Horticultural Societies—Concluded.**JACKSON COUNTY.**

Organized September 3, 1896.
 President, J. W. Williams.
 Vice-President, Geo. Hoover.
 Secretary, F. W. Dixon.
 Treasurer, Jacob Nixon.
 Post-office of all, Holton.

JEFFERSON COUNTY.

Organized June 3, 1896.
 President, Edwin Snyder, Oskaloosa.
 Vice-President, J. M. Puderbaugh, Osawkie.
 Secretary, E. M. Gray, Perry.
 Treasurer, J. M. Curry, Winchester.

KINGMAN COUNTY.

Organized May 5, 1897.
 President, W. R. Coleman.
 Vice-President, L. W. Leach.
 Secretary, P. B. Gillett.
 Treasurer, W. H. Childs.
 Post-office of all, Kingman.

LABETTE COUNTY.

Organized January 17, 1896.
 President, John Richardson, Chetopa.
 Vice-President, D. Doyle, Oswego.
 Secretary, R. DeGarmo, Oswego.
 Treasurer, H. S. Coley, Oswego.

LEAVENWORTH COUNTY.

Organized in 1861 or '62—reorganized in 1896.
 President, Francis Goble, Pleasant Ridge.
 Vice-President, Dr. J. Stayman, Leavenworth.
 Secretary, Miss E. Geyer, Leavenworth.
 Treasurer, Fred Eason, Lansing.

MANHATTAN SOCIETY.

Organized January, 1874.
 President, F. C. Sears.
 Vice-President, T. C. Wells.
 Secretary, W. J. Griffing.
 Treasurer, S. D. Moss,
 Post-office of all, Manhattan.

MARION COUNTY.

Organized June 27, 1896.
 President, Jas. McNicol, Lost Springs.
 Vice-President, R. S. Clancy, Marion.
 Secretary, O. T. Olmstead, Marion.
 Treasurer, H. J. Hansen, Peabody.

McPHERSON COUNTY.

Organized May 13, 1897.
 President, A. Bass.
 Vice-President, A. J. Hartsock.
 Secretary, W. A. Morris.
 Treasurer, J. M. Kirkbridge.
 Post-office of all, McPherson.

MISSOURI VALLEY.

Organized (?)
 President, Homer Reed, Kansas City, Mo.
 Vice-President, Edwin Taylor, Edwardsville.
 Secretary, Clarence Chandler, Argentine.
 Treasurer, G. F. Espenlaub, Rosedale.

MITCHELL COUNTY.

Organized December 22, 1896.
 President, J. T. Barnes.
 Vice-President, S. H. Seager.
 Secretary, Dr. C. A. Perdue.
 Treasurer, T. L. Donnell.
 Post-office of all, Beloit.

MONTGOMERY COUNTY.

Organized February 15, 1897.
 President, John M. Alteffer.
 Secretary, W. H. McCord, both Independence.

OSAGE COUNTY.

Organized January 14, 1882.
 President, Noah Arnold, Burlingame.
 Secretary, C. D. Martindale, Scranton.
 Treasurer, Mrs. E. G. Terry, Burlingame.

SABETHA SOCIETY.

Organized August 26, 1896.
 President, Henry Isley, Fairview.
 Vice-President, A. C. Hogbin, Sabetha.
 Secretary, J. L. Mowder, Sabetha.
 Treasurer, T. J. Pace, Sabetha.

SALINE COUNTY.

Organized December 15, 1877.
 President, Thos. Anderson.
 Vice-President, B. F. Peeler.
 Secretary, R. H. Bishop.
 Treasurer, D. S. Kohr.
 Post-office of all, Salina.

SHAWNEE COUNTY.

Organized January 3, 1891.
 President, Hon. A. L. Brooke, North Topeka.
 Vice-President, A. B. Smith.
 Secretary, W. S. Charles.
 Treasurer, John Armstrong.
 Post-office of all, Topeka.

WABAUNSEE COUNTY.

Organized April 25, 1896.
 President, John Cousins, Eskridge.
 Secretary, C. C. Cook, Bradford.

WOODSON COUNTY.

Organized April 15, 1897.
 President, Hon. William Stokebrand.
 Vice-President, J. M. Wilder.
 Secretary and Treasurer, A. J. Jones.
 Post-office of all, Yates Center.

ROLL OF MEMBERS.

HONORARY.

Colman, Norman J., St. Louis, Mo.	Miller, Samuel, Bluffton, Mo.
Morse, Dr. L. D., unknown.	Kelsey, Prof S. T., Kawana, N. C.
Murtfeldt, C. W., Kirkwood, Mo.	Snow, Prof. F. H., Lawrence, Kan.
President of the State Agricultural College, Manhattan, Kan.	
Chair of Chemistry and Mineralogy, State Agricultural College, Manhattan, Kan.	
Chair of Botany and Horticulture, State Agricultural College, Manhattan, Kan.	
Chair of Zoology and Entomology, State Agricultural College, Manhattan, Kan.	
Chair of Household Economy and Hygiene, State Agricultural College, Manhattan, Kan.	
Chair of Industrial Art and Design, State Agricultural College, Manhattan, Kan.	
Lantz, Prof. D. E., State Agricultural College, Manhattan, Kan.	
Kedzie, Prof. R. C., Agricultural College, Michigan.	
Cook, Prof. A. J., Agricultural College, Michigan.	
Bailey, Prof. L. H., Cornell University, Ithaca, N. Y.	
Burrill, Prof. T. J., secretary American Society of Microscopists, Champaign, Ill.	
Forbes, Prof. S. A., State Entomologist, Champaign, Ill.	
Lintner, Prof. A. J., State Entomologist, Albany, N. Y.	
Plank, Prof. E. N., botanist, unknown.	
Booth, Capt. Henry, Larned, Kan.	
Holsinger, Maj. Frank, Rosedale, Kan.	

LIST OF LIFE MEMBERS RESIDING IN KANSAS.

Allen, Martin, Hays City, Ellis county.	Longstreth, C. H., Lakin, Kearny county.
Billings, Ed., unknown.	Leach, L. W., Kingman, Kingman county.
Bohrer, Dr. G., Chase, Rice county.	Litson, W. H., Benton, Butler county.
Brackett, G. C., Lawrence, Douglas county.	Lawrence, R. E., Wichita, Sedgwick county.
Buckman, Thos., Topeka, Shawnee county.	Leach, Joseph, St. Mary's, Pottawatomie Co.
Buckman, A. H., Topeka, Shawnee county.	Martin, James, Lawrence, Douglas county.
Byram, L. T., Jewell City, Jewell county.	Martindale, C. D., Scranton, Osage county.
Barnes, William H., Topeka, Shawnee county.	McKee, John, Marysville, Marshall county.
Cecil, J. F., North Topeka, Shawnee county.	Mentch, J., Winfield, Sumner county.
Cloughly, John, Parsons, Labette county.	Miles, S. W., unknown.
Clark, J. G., Waveland, Shawnee county.	Mohler, J., Topeka, Shawnee county.
Cook, Thos. F., Effingham, Atchison county.	Mosher, J. A., Herington, Dickinson county.
Cutter, William, Junction City, Geary county.	Mosier, M. R., Herington, Dickinson county.
Daniels, E. T., Kiowa, Barber county.	Oberndorf, A., jr., Centralia, Nemaha county.
Diehl, E. P., Olathe, Johnson county.	Popenoe, Prof. E. A., Manhattan, Riley Co.
Dixon, F. W., Holton, Jackson county.	Robson, J. W., Abilene, Dickinson county.
Dobbs, J. B., Antelope, Marion county.	Robison, J. W., El Dorado, Butler county.
Dow, Chas. A., unknown.	Randolph, J. V., Emporia, Lyon county.
Fairchild, Prof. Geo. T., Manhattan, Riley Co.	Schlichter, J. B., Sterling, Rice county.
Falconer, John, Belleville, Republic county.	Sheffield, C. H., Topeka, Shawnee county.
Ferris, H. L., Osage City, Osage county.	Smith, W. W., Le Roy, Coffey county.
Graham, I. D., Manhattan, Riley county.	Stayman, Dr. J., Leavenworth, Leavenworth county.
Hall, M., unknown.	Trafton, N., unknown.
Harris, E. P., Lecompton, Douglas county.	Wellhouse, Fred., Topeka, Shawnee county.
Harris, F. B., White City, Morris county.	Weidman, J., Pleasant Valley, Lincoln county.
Harrison, T. W., Topeka, Shawnee county.	Wickersham, C. G., Parsons, Labette county.
Holman, E. J., Leavenworth, Leavenworth Co.	Williams, J. L., Kansas City, Wyandotte Co.
Irwin, C. M., Wichita, Sedgwick county.	Williams, J. W., Holton, Jackson county.
Johnson, G. Y., Lawrence, Douglas county.	Wolverton, E. K., Barnes.
Kelsey, C. C., unknown.	

Secretary of the Manhattan Horticultural Society.

Secretary of the Johnson County Horticultural Society.

LIFE MEMBERS NOT RESIDING IN KANSAS.

- | | |
|----------------------------------|---------------------------------|
| Allen, Abner, College Park, Cal. | Hicks, John S., Roslyn, N. Y. |
| Fosnot, W. E., unknown. | Milliken, Robt., Nampa, Idaho. |
| Gale, Prof. E., Mangona, Fla. | Taylor, E. A., Arcadia, Tex. |
| Godfrey, A. N., unknown. | Taylor, T. T., ——, Tex. |
| Henry, T. C., Denver, Colo. | Van Deman, H. E. Parkesley, Va. |

LIST OF ANNUAL MEMBERS.

- | | |
|--|---|
| Barnes, W. E., Vinland, Douglas Co. | Plaskett, Wm., Lawrence, Douglas Co. |
| Brooke, A. L., North Topeka, Shawnee Co. | Richardson, Geo. C., Leavenworth, Leaven- |
| Burnett, F. H., Benedict, Wilson Co. | worth Co. |
| Cellar, W. D., Edwardsville, Wyandotte Co. | Roby, Dr. H. W., Topeka, Shawnee Co. |
| Chandler, Asa, Argentine, Wyandotte Co. | Rosenberger, E. L., Hiawatha, Brown Co. |
| Coburn, F. D., Kansas City, Wyandotte Co. | Sears, F. C., Manhattan, Riley Co. |
| Cowgill, E. B., Topeka, Shawnee Co. | Schell, W. F., Wichita, Sedgwick Co. |
| Griesa, A. H., Lawrence, Douglas Co. | Sharp, James, Parkerville, Morris Co. |
| Haines, D. S., Edwardsville, Wyandotte Co. | Smyth, B. B., Topeka, Shawnee Co. |
| Hershey, N. G., Donegal, Dickinson Co. | Stanley, T. A., Osawatomie, Miami Co. |
| Longshore, E. W., Topeka, Shawnee Co. | Taylor, Edwin, Edwardsville, Wyandotte Co. |
| Lux, Philip, Topeka, Shawnee Co. | Thompson, E. P., Wichita, Sedgwick Co. |
| Maffet, G. W., Lawrence, Douglas Co. | Wellhouse, Walter, Topeka, Shawnee Co. |
| Munger, Geo. M., Eureka, Greenwood Co. | Wheeler, Chas. G., Nortonville, Jefferson Co. |

DELEGATES.

- | | |
|---------------------------------|--------------------------------|
| <i>Douglas county:</i> | <i>Osage county:</i> |
| B. F. Smith, Lawrence. | C. D. Martindale, Scranton. |
| N. P. Deming, " | H. L. Ferris, Osage City. |
| G. Y. Johnson, " | |
| W. E. Barnes, Vinland. | <i>Sumner county:</i> |
| A. H. Griesa, Lawrence. | G. W. Bailey, Wellington. |
| Wm. Plaskett, " | <i>Leavenworth county:</i> |
| Sam. Reynolds, " | Dr. J. Stayman, Leavenworth. |
| A. C. Griesa, " | E. J. Holman, " |
| <i>Shawnee county:</i> | <i>Miami county:</i> |
| E. B. Cowgill, Topeka. | T. A. Stanley, Paola. |
| H. J. Newberry, " | <i>Geary county:</i> |
| John Armstrong, " | William Cutter, Junction City. |
| Philip Lux, " | <i>Morris county:</i> |
| <i>Wyandotte county:</i> | James Sharp, Parkerville. |
| Maj. Frank Holsinger, Rosedale. | <i>Republic county:</i> |
| <i>Johnson county:</i> | P. A. Gardner. |
| E. P. Diehl, Olathe. | <i>Rice county:</i> |
| <i>Jackson county:</i> | Dr. G. Bohrer, Chase. |
| J. W. Williams, Holton. | <i>Riley county:</i> |
| F. W. Dixon, " | W. Marlatt, Manhattan. |
| <i>Jefferson county:</i> | Prof. S. C. Mason, " |
| E. M. Gray, Perry. | R. H. Mackey, " |
| J. M. Curry, Winchester. | <i>Marion county:</i> |
| <i>Nemaha county:</i> | James McNicol, Lost Springs. |
| S. J. Baldwin, Seneca. | <i>Wabaunsee county:</i> |
| A. Oberndorf, Centralia. | C. C. Cook, Bradford. |
| | John McMasters, Eskridge. |

CONSTITUTION.

Approved and made effective at the thirtieth annual meeting, in December, 1896.

ARTICLE 1.—This association shall be known as THE KANSAS STATE HORTICULTURAL SOCIETY.

ART. 2.—Its object shall be the promotion of horticulture.

ART. 3.—Its membership shall consist of (1) honorary members, persons of distinguished merit in horticulture, elected by a majority vote of the Society; (2) life members, persons paying \$5 to the secretary at one time; and (3) annual members, persons paying \$1 to the secretary, membership of same to cease on the first day of the following annual meeting, unless renewed.

ART. 4.—The legislative body of this Society shall consist of life members, two delegates from each auxiliary society, and annual members of one year's standing.

ART. 5.—Its officers shall be a president, vice-president, secretary, and treasurer, elected by ballot at the annual meetings in even years. They shall serve for the term of two years, or until their successors are elected and qualified.

ART. 6.—There shall be elected, biennially, a trustee from each congressional district, who shall serve for two years or until a successor shall have been elected and qualified. These trustees, together with the president, vice-president, secretary, and treasurer, shall constitute an executive board. The president, secretary and treasurer shall constitute the executive committee.

ART. 7.—The terms of its officers and trustees, excepting the secretary and treasurer, shall begin immediately on adjournment of the annual meeting at which they shall be elected; that of the secretary and treasurer shall begin July first following their election.

ART. 8.—This Society shall hold its annual meeting in Topeka, during the month of December. Semiannual meetings may be held at such time and place as the executive committee shall determine.

ART. 9.—The official seal of this Society shall consist of a circular disc, and shall contain thereon the following: "Kansas State Horticultural Society, 1869. *Ad astra per aspera. Man's first occupation.*" With appropriate illustration.

ART. 10.—This constitution may be changed or amended by a two-thirds vote of the members present at any annual meeting, provided such change or amendment shall have been submitted and read at the last preceding annual meeting.

By-Laws.

SECTION 1. It shall be the duty of the president to preside at all meetings of this Society and of the executive board, and perform such other duties as may devolve upon him.

SEC. 2. The vice-president shall in the absence or inability of the president perform the duties of said office.

SEC. 3. It shall be the duty of the secretary to keep a full record of the proceedings of this Society; to have charge of the official seal and keys of the Society's rooms, and full care of all books, papers, furniture, diplomas and other property pertaining to or belonging to this Society; also to represent this Society in all its correspondence. He may, by consent of the executive committee, appoint a deputy and employ necessary help; and shall receive all money due this

Society, paying same (excepting state appropriation) to the treasurer, taking his receipt therefor. He shall encourage and assist in organizing auxiliary societies throughout the state, gather and record statistics, make a complete report of his office at each annual meeting, and compile annually a report of the transactions of this Society for publication.

SEC. 4. It shall be the duty of the treasurer to receive from the secretary all money (except state appropriation) belonging to this Society, and pay out the same upon order of the secretary countersigned by the president. He shall keep an account of the funds in his charge, and make an annual report to this Society. At the expiration of his term, he shall turn over to his successor all books, accounts and money remaining in his hands or possession.

SEC. 5. It shall be the duty of the executive committee to assist the secretary in compilation of the report for publication; to perform the duties of the executive board between meetings; supervise the disposal of all money of this Society, and perform such other duties as the executive board may prescribe.

SEC. 6. The executive board shall have full control of all the affairs of this Society; shall appoint standing committees at the close of each annual meeting for the ensuing year on all subjects of interest to Kansas horticulture; each standing committee to make a written report, through its chairman, to the annual meeting following their appointment. It shall hold a board meeting on the day preceding the annual meeting, and again immediately after adjournment of the annual meeting.

SEC. 7. By a two-thirds vote of the members present at any annual meeting, these by-laws may be changed or amended.

Nineteenth

SEMI-ANNUAL MEETING.

Iola, June 11 and 12, 1896.

THE STATE HORTICULTURAL SOCIETY.

From the *Iola Register*.

Our horticultural meeting, at Iola, was opened at 10:30, June 11, with prayer by Rev. M. F. King. President Wellhouse presided over the meeting, and Mayor R. B. Stevenson, in a few earnest remarks, welcomed the visitors to the hospitality of our city and our homes, where they were entertained, to which President Wellhouse responded.

A very creditable display was made of horticultural products, flowers, berries, and vegetables, far advanced for the time of the year. Mr. Dibble displayed sweet corn sufficiently matured for the table in 71 days from planting. Raspberries were exhibited from a neighboring county.

The discussions were of a general nature. Acting Secretary Barnes gave valuable information on every subject brought out. At noon a paper of great merit by Mrs. G. M. Nelson, on "Home Adornment," was read and discussed. "Floriculture for Amateurs," containing many valuable hints to lovers of flowers and those who can cultivate them, if not more than a few potted plants in a window, was a paper by Mrs. James Mason. In these discussions Secretary Barnes made some very interesting suggestions concerning the adornment of school grounds and plans for enlisting the co-operation of the pupils, to the end of not only beautifying the surroundings, but the education of the child in a valued and pleasant study. Secretary Barnes also read an exceeding good paper on "How to Improve our County Fairs," that will enlist the attention of fair associations, we hope.

Fine music was rendered by our mandolin club during the opening session.

An impromptu meeting was held in the evening at the court-house, and opened by a question box, and many important points brought out. Vice-President Robison, of El Dorado, gave a very good talk during the discussion on varieties of apples to plant; and "What you plant for" and "Of whom you buy" seemed the two important questions that should be answered. President Wellhouse spoke on "The Commercial Orchard"; and, if experience counts for anything, Mr. Wellhouse can talk to the point, for 1,497 acres of orchard are successfully conducted by him. He recommends but five varieties for a commercial orchard. The ladies' mandolin club and a fine recitation by Miss Fannie Norris varied the exercises, and to these young ladies our thanks are extended.

On Friday a picnic meeting was held in Iola park. Capt. H. A. Ewing's felicitous address was well received, and a bounteous dinner was served by the friends (and no clan can excel the lady members of the Allen county society at a picnic dinner), after which the discussion went on. Five different plans had been found by various members to successfully raise currants. An address by Senator C. F. Scott was then delivered, after which Farmer Tredway gave a talk

on "Horticulture for the Farmer," which was expressive and true, and which Mr. Tredway carries out at his home at Allen Center. Mr. A. D. Buck told of a very successful cultivation of quinces. Hon. E. H. Funston said that the talk had been of how to keep the boys on the farm, but he recently learned how to keep the old man on the farm, and he had only left his plow to come to the horticultural meeting. President Wellhouse spoke on "Cold Storage," and Secretary Barnes read a valuable paper on "Teaching our Sons our Business," and Vice-President Robison gave another of his interesting and instructive talks, after which the officers and many members and friends from the various parts of our county departed, having participated in what President Wellhouse called one of the most satisfactory semiannual meetings of the State Horticultural Society.

J. W. J.

ADDRESS OF WELCOME.

By MR. STEVENSON, mayor of Iola.

Mr. President and Members of the Kansas State Horticultural Society:
The city of Iola bids you a most hearty welcome. Your splendid work in the interest of horticulture in this state is so marked and directed by such a high order of intelligence that certainly it is a great honor to any city to be designated as your meeting place. This honor we appreciate in the highest degree, and extend to you the open-handed hospitality of the most generous of people. Thrice welcome to our city and our homes. It is my hope you will find time from your important duties to spend a few hours with a committee in looking over the very extra attractions our community affords.

We have underneath and around our city what is pronounced by experts of the highest order to be the greatest gas field in the United States, and, may I not say, in the world? We have already developed six wells that, combined, produce more than 50 million cubic feet of gas daily, which is equal to a coal-mine that produces 2,500 tons of coal a day. The area of this immense deposit of gas has not been fully defined, but the developments so far made assure a magnificent well upon any of many thousand acres of land.

Another of nature's munificent gifts to us is our building stone, which is within less than 3 per cent. of pure marble, making the very best building and sidewalk stone.

Combining the two, the gas and the stone, we have a splendid quality of lime at the most insignificant figures, which can be transported to any part of the globe on the line of either of two great systems of railroads. We hope to entertain you soon again with a largely augmented population, when we can add to what we can show you now many factories and the hum and whirl of their busy wheels.

I must not forget to acknowledge our obligations to the Allen County Horticultural Society for this great honor to our city. But what is the use of trying to keep even with them? They are so continually placing us under obligations. So we give it up and follow wherever they lead. When we contemplate the many prizes won by them, we may warn the State Society to look out for its laurels, though it can boast of its apple king, its corn king, and its potato king.

Where the Allen County Horticultural Society informs our citizens that a handsome purse is offered that they may compete for we know that it is ours, because its affairs are directed by intelligence, industry, and perseverance. We

are proud of our horticultural society, and rejoice in its many victories. In the name of the city of Iola and its generous citizens, I again bid you a most hearty welcome.

TO THE HORTICULTURISTS OF KANSAS.

BY THE SECRETARY.

With pleasure I appear before you to report the "progress of the Kansas State Horticultural Society."

At the late annual meeting at Lawrence we gave the "Outlook for 1896," in which was embodied our hopes and aspirations. These hopes have been partly realized. We have been assigned and moved into three beautiful, nicely furnished, new rooms, on the ground floor, in the northwest angle of the state-house. This gives the Society a permanent home among the other departments of our state; a home where we can be found, and where the books, papers and archives can be properly kept.

We received two world's fair diplomas and medals. These diplomas we have had framed and hung, together with four diplomas given the Society in the early seventies by the American Institute, of New York; also the diploma given the Society at Philadelphia, at the centennial. Diplomas taken at the Virginia State Pomological Society's fair and the New Jersey state fair have been mislaid. We hope soon to hang all these trophies, also many photographs of horticultural productions, etc., on the walls.

We have received portraits in crayon of President Wellhouse and of Dr. Chas. Williamson, of Washington county, who was a trustee for 10 years. We have the promise of a great many more of the "old guard," and really hope to have the collection complete, that all visitors may see the founders and active spirits in the early horticulture of our state.

Our new rooms are small but pleasant, with a pleasing outlook upon broad lawns and pleasant avenues. Last July we began a display of horticultural products; the great value of this is hard to realize. Visitors to the capitol, of which there are an immense number, stand and admire the beautiful fruits; some are amazed when informed that they are of Kansas growth. Some doubt their reality, and believe they are preserved or artificial. We have been careful to label each plate of fruit correctly, and by this means many amateur and inexperienced horticulturists learn the true names of the varieties. Many come to inquire about and fix in their minds the appearance of fruits they have heard of or contemplate planting. Our visitors are from Maine to California and Canada.

We hope to continue, enlarge and perfect this exhibition, and ask those interested to forward choice sound, assorted fruits in their season, plainly labeled with supposed name, and with address of grower. On such donations the state will pay the expressage. We also want samples of new and novel fruits for testing. Last fall over 50 varieties of fruit were sent in for names. This display advertises the county and the state, and brings to light many helpful ideas, thoughts, and expressions. In this connection I would remark that Kansas ranks on fruit well among the states. Kansas, according to the census of 1890, ranks fifth on cherries, sixth on peaches (rivaling California), fourteenth on apples, twenty-fourth on pears, and eighth on potatoes.

Next September 28, 29, and 30, and October 1, 2, and 3, Topeka will put on gala dress to entertain the world. The state reunion of the G. A. R. will be held

there, and great preparations and plans are being formulated to make it a time of general festivities.

The State Horticultural Society proposes at that time to hold a free exhibition of the horticultural products of the state. The secretary of state has placed at our disposal a large, well-finished, well-lighted room. You are not only asked to contribute, but also to begin at once to select and care for your products in a special manner, that they may be choice, well grown, and an honor to the state. There will be no admission fee, and there will probably be no premiums, and we hope to welcome each and every one of you.

The strong and continuous winds of April and May have been our greatest danger, causing much fruit to fall. While the apple prospect is not as good as last year, there is still a prospect of a good crop of fruit. Do not fear overproduction. In 1890 we came fourteenth, with 3,713,019 bushels, while the aggregate of the 13 states overtaking us was over 114 millions of bushels of apples. We need not be alarmed during this generation.

Vast numbers of questions are propounded to us by mail, and in all cases we are pleased to answer to the best of our ability. We have at our elbow a large library of reports from our own and sister states, and can follow a subject through various and many authorities, and draw valuable conclusions.

The possibilities of horticulture in Kansas are hardly yet touched upon. We should send out of our state to less favored localities, annually, before July 1, \$300,000 worth of horticultural luxuries. Kansas is so located, and has such climatic advantages, her possibilities of successful irrigation are so great, that, with the energy and grit of her husbandmen, she can accomplish horticultural wonders.

The office of the Kansas State Horticultural Society ought to be, and while I am acting secretary will be, a free bureau of information for the horticulturists of the state. I have been interested in horticulture for 38 years, and have a large horticultural library and a lifelong love for horticultural pursuits, and if I cannot answer questions of my own knowledge, we hope to make use of the best horticultural literature and talent in the United States or the world.

The office being now permanently located, its facilities for usefulness will certainly be improved and augmented, and we confidently look forward to the time when it will become the best equipped and most complete horticultural bureau in the world. It lies with the horticulturists of the state to make it so. Remember, it is not a county or local organization. Shawnee county has an active and large horticultural society, and President Wellhouse and myself are both honorary members of the same, yet Shawnee County Horticultural Society does not in the least matter express any opinions or control any action of the State Society. This is a state society, and belongs to the people. It is hoped the people appreciate it. Your agricultural and horticultural interests are above politics or party matters; take those interests out of the state and all others become worthless. Let us love our calling, and so teach it to our children that they may begin where we leave off. When I came to Kansas, wild fruits were a luxury; now we have the best and most luscious fruits, thus verifying our state motto: "Through tribulation to the stars."

HOME ADORNMENT.

Read at the summer meeting of State Society June 11, 1896, by Mrs. G. M. NELSON, of Iola, Kan.

In addressing this audience on "Home Adornment," I do so the more willingly because I believe the subject of interest to every person present.

You are here in the interests of an organization which has for its object the better development of an industry that sustains no lighter responsibility than the sustenance of all the race. Not many among us but has for the prime object of his efforts the making and maintaining of home—home in its broad and comprehensive meaning. Home is not only the place of residence, the house where one resides, but all that surrounds it, even to the fatherland that gave us birth, and all that pertains thereto. So, when we talk of adorning a home, we surely mean something more than the material beautifying of the inside and outside of the little corner of the earth which we individually possess and inhabit. To be sure that little corner should claim our first attention, because in the home the family abides and characters are builded. It should be kept as beautiful and attractive as possible. The outside should exhibit a well-kept lawn and flower-garden—a spot religiously reserved for the cultivation of flowers.

The lawn may be ornamented with flowering shrubs, but few people have tested the enjoyment to be derived from a garden devoted to annuals. In Kansas we have plenty of room for it, and the prevailing impression that the care of a flower-garden consumes more time than can be profitably expended upon it is a fallacy. It requires little more time and labor to cultivate a flower-garden than are necessary to keep out weeds from the same space if the flowers are not there. A bed of hyacinths and tulips for early blooming, and in the darkest, coolest corner a bed of pansies will bloom continually all summer. Reserve the sunniest, driest place, where everything dries up, for portulaca, and instead of a bed of ragweeds you will see a mass of bloom unrivaled for brilliant coloring. I like the old-time four-o'clock, the sturdy marigold and coxcomb for late blooming; indeed, the latter may be used to good advantage on the lawn as an ornamental shrub—with no end of everlastings that defy the early frosts. Between these extremes of spring and autumn, the list of hardy desirables is too long to be enumerated here. Their number is legion.

You do not care to look only at the outside of home, but it will not be attractive unless made so, and these simple adornments are possible to every one. Everything in the vegetable and animal kingdoms chooses its home, and every creature, from the worm that crawls to man who bears the image of his Maker, fashions his home according to his own taste. In man it may represent himself, and all his surroundings suggest his own individuality; or, as is sometimes noticed, the home may exhibit a strained effort to satisfy visitors' eyes. This last is a silly mistake that deserves but passing notice, for all mistakes work out their appointed end in one way or another. Some one has said, "We think out to the extent of our limitations on every side, and therefore the paradox that extremes meet"; and nowhere do we find this more frequently exemplified than in the home. In the plainest of them splendid characters have made their growth: characters that do most beautifully adorn the era in which they live with a beneficent influence that descends in effect to all succeeding generations. This is the best side of my subject, the building of characters in the home. The lit-

erature, music and society that are permitted and encouraged in the home, especially the latter, have much to do in forming the character of the young. It seems to me that most of us, and the young in particular, are more impressed by associates than by the literature and music that is read. If this be true, how essential it is that they be wisely chosen.

A good man known to most of you said not long ago, "In the home where child life starts is the place where moral fiber must be built, if the child is ever to have moral fiber." Who will dispute it? What is necessary to the growth of moral fiber? First, the parents must have so high regard for morality, uprightness, intellectual development and Christian principles that no child can ever know an instance when the parent deviated ever so little from these high standards. For what our homes become the parents first are responsible, and after them the children. "These twain shall be one" seems to me to mean the father as well as the mother. It is impossible that father and mother may both live and not visibly influence their children. There is a strong tendency to divide the house, as it were. When the sons and daughters attain to years and strength enough to enable them to bear a portion of the daily burden, they are turned out—the former with the father, who alone share each other's confidence, and the same is true of mother and daughters. We do not need the "new woman" any more than we need the new man. What we do need is unity of action in training the youths that belong to us, and this duty or privilege is not always without its perplexing side.

On a railway journey, I once overheard the conversation of two elderly gentlemen as we were rolling over acres and miles of acres of fertile farm land. One was relating to the other that a certain estate which happened at that moment to be in sight would at some future time belong to his youngest child. At some inquiry from his friend the former explained that he had found it a good plan to make his children feel that just as far as they were competent to receive the trust the home belonged to them, to make and to manage as much as to their parents; and that a sense of possession and undisputed ownership he had found to be a powerful agent in establishing an intelligent interest in family affairs that is valuable to children. Well, we cannot all of us bestow a wide domain upon our several children, but in the best way possible to us we may bring about this pleasant sense of nearness in the home, and it must be a satisfaction to children as well as parents. I am sure that I have known homes where the children's privileges were curtailed beyond all reasonableness, and again I have known homes that were only a grievance, if I am allowed the expression, because the children's privileges were not wisely bestowed.

I believe I was to say something in this paper that would help "gather in the young," and so my suggestions are first to the parents, because I think the root of the matter is with them. I remember that the Master was 30 years with His parents, preparing Himself. It is surely a good plan to imitate that example, and keep the children in the home until they are well prepared and sure of themselves. More is lost than gained when any one starts for himself without sufficient preparation. This mistake is more noticeable in agricultural communities than elsewhere, and in this paper I wish to urge its avoidance. The adornment of home is something more than the planting of orchards and vineyard and park and avenue, or the laying of carpets, hanging of tapestry and pictures, or the placing of literature, music, and furniture. Good and necessary are they always; not to be overlooked or neglected, but secondary to the paternal character that should be a thought-awakening, intellect-quickenning power.

And now a word to the children who go forth in their turn to put away child-

ish things and become men and women. Woe to any one of you that despises the counsel of willing parents. Your poor little ambitions are of little worth beyond the bare truth that "any ambition is better than none at all." And who so able to detect in your forming minds the possibilities that in you lie, and to direct you to their fullest attainment? Be swift to counsel with father and with mother. So may you grow into the truest ornament a home may contain, a noble son or daughter, aspiring to noble manhood or womanhood, noble in aim and usefulness, exerting an influence, great or small, as God appoints, that shall enable you to sustain yourself with credit among this great people who boast the best and noblest fatherland on earth.

FLORICULTURE FOR AMATEURS.

Read at the summer meeting in Iola, June 10, 1896, by Mrs. JENNIE E. MASON.

A writer has said "Show me a home adorned with flowers and vines, and I will show you a family having at heart a measure of refinement." The love of the beautiful is in their souls, and they instinctively search out for its gratification in their surroundings. Their efforts may appear crude, but they are frequently the stepping-stone to a better, truer, purer life. Few things tend to elevate us more than the cultivation of plant life. I believe the question of social equality and other questions kindred to it would be solved, to a great degree, if every man could have a little plot of ground for his very own, to till and adorn, using the products grown upon it for the comfort and pleasure of those nearest and dearest to him. Every year there is a marked advance in the floricultural kingdom; books and periodicals devoted to flower culture are on the increase; catalogues are scattered broadcast, free for the asking; some of them, with their handsome colored plates, are really works of art. We are almost bewildered, at times, by the number and variety of rich floral treasures offered us. The amateur florist can obtain much valuable information by a careful perusal of these catalogues. This subject covers so much ground that I can only touch briefly on a few of the leading points.

"How shall I stock my garden?" is a question often asked by amateurs. That depends upon its size, location, and soil, if for outdoor cultivation, or upon the number and location of the windows that can be given up to them, if for window gardening. In either case much depends upon the soil, although I believe some writers lay more stress than necessary upon this. With potted plants a large proportion of sand should be used; one principal trouble in growing potted plants is watering, resulting in a sour condition of the soil, rotting of the roots, and stunting of plants, if not complete loss. The remedy is a loose, porous soil and good drainage. The soil in the pots of plants we buy at the greenhouse seems to be almost half sand; let us try this and see if results are not satisfactory, using fertilizers as the growing plants seem to require.

A great many fertilizers are advertised; all of them no doubt possess merit, but the most frequently advised, and the best for house use, is ammonia; a teaspoonful to a quart of water will be about the right proportion for most plants. Common glue is also good; press small pieces into the soil at the edge of the pots. A lady whose windows in winter are the envy of all her friends, because continually ablaze with bloom, gives the following as her method of using glue: When ready to pot her plants in the fall, she puts in drainage, and two or three inches

of good garden soil mixed with sand, then lays in a piece of glue, adds an inch or two of earth, sets in her plants, and fills up the pots. It is cleanly, cheap, and easily used, and I believe is well worth trying.

Many amateurs consider annuals difficult to raise, and as scarcely paying for the trouble required, yet some of our choicest flowers belong to this class, and we would be loath to give them up. Many flower seeds are very small and need to be planted in hotbeds or boxes. Instead of keeping the boxes in the house, I prefer the following: Take a box the size you need, fill with good soft soil, well enriched, pulverize the top layer fine and mix in a little sand to keep it from baking on top, set the box in a sheltered place, water well, and sow the seeds in rows an inch or an inch and a half apart, leaving room to cultivate when the plants come up; you can do this by stirring the soil with a steel pen, or that ever handy article that every woman finds so many uses for, a hairpin. There is no better article than a little steel hairpin to loosen the soil in flower pots when it becomes packed and hard on top, as it can be stirred quite deeply without disturbing the roots. Instead of covering the box with a sash of glass, as for hotbeds, I like the following as well, or better: Make a frame of laths to rest on top of the boxes—any woman can make one who can drive carpet tacks; to this frame tack thin unbleached muslin; it is better if coated with linseed oil, but that is not necessary; keep this cover on the box until the plants are up, and afterwards during heavy rains, cold nights, and when the sun shines brightly. In the middle of the day the principal care needed is not to over water, or the plants may damp off. This plan will give stronger, more stocky plants than those raised in the house, and with less care and work.

When the plants are one or two inches high transplant to the beds, placing them the distance apart that you wish them to be when fully grown. Select a cloudy day, if possible; if not, I do it in the evening. Recently I learned the following plan from a gentleman who is successful in raising fine vegetables and flowers. He transplants at any time. His method is as follows: Make a large hole, set the plant in, and pour in from a half to a full pail of water, leaving it and proceeding until the remainder are similarly placed; then returning to the first, he finds the water soaked away and the roots well settled. He then fills the hole with dry soil, thus avoiding a hard crust on top, which frequently follows from watering after the plant is set. He claims that the plant will wilt all it ever will during that day, and that the cool, moist hours of the night will revive it and give it a good start. I gave it one trial, putting out a bed of petunias about 11 A. M. on a bright, warm day, and I think all the plants lived.

For the busy housewife who has little time to give to flower culture, I would recommend flowering shrubs and perennials. These have been so much improved in late years, and the list so enlarged, that a careful selection will give flowers from them alone from early spring until "jack frost" lays his icy fingers on all vegetation. They require little care; simply keeping them clear of grass and weeds, trimming the shrubs to a good form, and occasionally enriching the soil. Perennials, easily raised from seed costing but a few cents per paper, will soon form large clumps, increasing in beauty each year. Probably the best way to increase shrubbery is by layering; the common method is to bend down a branch, make a cut half way through it (on upper side), and place the cut in the ground, covering it an inch or two deep. Lately, I have seen the following directions, which I think would be better in some ways than the old method: Make the cut on the upper side of the branch half way through and upward, perhaps half an inch, leaving a tongue-like projection, give the

branch a twist to bring this down, and bury; that leaves the branch in an upright position, which is the natural one for growth. I have exhausted my time and, probably, your patience too, and yet there are so many interesting points untouched. If all here are not floriculturists, I hope I have been able to drop some thought seed that in years to come may bud and bloom in your lives, and lead you to take up this interesting and elevating branch of our society's work.

SHALL OUR CHILDREN LEARN OUR BUSINESS, OR ENTER SOME OTHER CALLING ?

By WILLIAM H. BARNES, Secretary of the Kansas State Horticultural Society.

If our children do not learn *our* business, there are the professions, the trades, manufactures, mining, etc. As there are so many openings or alternatives, I will confine myself to the first question, viz.: "Shall our children learn our business?" I am here reminded of the young woman who received from her male friend a telegram reading this way: "Will you be mine? Answer by wire." After making up her mind she went to the place where they sell messages, and on inquiry she found she must pay for 10 words if she only sent one. One was enough, but she must have her money's worth; so she wrote 10 words on the blank and told the agent to "send that." It is a secret, but as it shows my exact opinion on this question, I give you her message of 10 words: "Yes! Yes! Yes! Yes! Yes! Yes! Yes! Yes! Yes!" This is my decision on this question. If a longer answer is needed, continue the same word *ad infinitum*. A man or woman engaged in any honorable and lucrative business should teach it to his or her children:

First—Because children should be educated in some line of usefulness.

Second—A parent should be the best teacher.

Third—Because of the opportunity afforded.

There are but few lines of business where the father is in close hourly communication with his family; ours is one of them. Our office, our warehouse, our fruit-cellars and our garden are usually within easy reach of our children.

A horticulturist may be sorting potatoes or packing fruit or vegetables to the musical prattle of his little ones.

One of the things that makes the life of an husbandman, orchardist or gardener happy is the hourly view of home and its loved ones.

The boys and girls help do the chores, and as we work a-field we see them leave home for school, meeting their passing fellows with shout and laughter. We see the wife shake the crumbs from the breakfast cloth and note her back-door preparation of vegetables for dinner. Perhaps we hear her voice in happy song, and finally see the dinner signal displayed, and the boys and girls come in filled with life and joy. Happy the husbandman and happy his family! Our little one picks up apples, dropping each in turn as her little, sharp eyes spy out a more attractive one. She claps her hands in delight as brother shakes a limb and the fruit comes dancing down. In her eagerness she tumbles down; we leave our work to kiss her and rub her imaginary bruises. Soon she spies a snake, and in awestricken wonder she sees papa kill it, and cannot understand why "papa hurted such a pretty thing."

The children early learn the location of the tree with the best and mellowest

apples upon it. They redden their lips and fingers in the strawberry patch, and, ere long, they carry a box, carelessly at first, and either side up; but as the new seasons arrive they want to help, and almost unconsciously they pass into the ranks of workers. Can they do it as readily and pleasantly in any other line? Now comes the need of the parental guiding hand and brain to show them why we work, what the results of idleness and neglect are, and what the results of diligence and care.

Some parents keep their children as drudges, expecting them to *inherit* a complete knowledge of the business in all its details, and curse and storm and scold because their children do not know it all (and they would thrash them if they really knew enough to correct the parents' blunders). You will find these same parents do not consult their children or try to explain to them the financial part of the business.

I know a man whose entire family assist in getting the horticultural products ready and off to market, and they could not tell whether father sold the stuff or gave it away, so reticent is he on money matters. I always made confidants of my family, and when sales were prompt and returns good the whole family rejoiced, and work went on with more vim and energy, each hoping the good market would continue; each feeling an interest in the success of the business.

If you want your boys to continue in your business, interest them in it. Tell them *all* you know about it, and you will be surprised at times in receiving from them new, original and valuable suggestions. Let them begin where you leave off. Could I have begun where I left off, by learning that much from my parents, I might have readily attained riches; but while I was becoming educated the good markets were slipping away, and other gardeners nearer these markets were supplying their wants. The Swiss watchmakers, the lacemakers, and others in special skilled lines, hand down their knowledge and experience to their children and grandchildren. Thus the later generations become experts as precise in their work as machines. We should teach our children all the minutiae of our business—educate them to its highest standard of possibilities. If our boys are thoroughly taught our business, it may prove the sheet-anchor that will some day save them.

How many thousands of unsuccessful merchants, manufacturers, speculators and bankers fall back upon farming or gardening (learned in their childhood) as their last and only chance? How many successful business men buy and retire to a country home to end their days in peace and plenty? How many leaders in politics and the professions have a country home to which they retire to recuperate their exhausted consciences and vitality?

These classes are each enjoying their country life, and make it more complete and happy if they learned in their youth all the requirements of horticultural and agricultural possibilities.

So I affirm that, no matter if your boy at 21 decides to enter some other occupation, the knowledge instilled into him in the days of his boyhood, as to how to make the "earth yield of her substance," will come to him with added force when the world frowns and everything looks dark, and age creeps on. Like the prodigal, he will arise and go to his father's business, and quit his foolishness.

I can think of no more delightful "second childhood" for old age than to get back to the memories of youth on the farm; in the orchard or garden, among the bees, birds, sheep, cattle, and horses; to get away from city's tumult and heat and stench to the quiet, roomy, shady, fragrant country, and spend declining years amid childhood's familiar scenes, after getting money, success, and fame.

Yes! teach your sons your business, in all its beauty and in all its disappointments. No business is more soul-elevating; none brings the wonders of an everyday God so near.

Horticulturists, as a class, are moral men and women; freer from soul-bitterness than tradesmen; with light hearts, clean hands and pure souls. Let me live and die in love with horticulture, and may my children love and respect their father's chosen profession!

REPORT OF FRUIT SHOW

HELD AT STATE CAPITOL DURING THE "FALL FESTIVITIES,"
SEPTEMBER 28, 29, 30, AND OCTOBER 1, 2, 3, 1896, BY THE
KANSAS STATE HORTICULTURAL SOCIETY.

There were over 1,000 plates of fruit, displayed on three tables each 50 feet long and on four small tables. There were about 30 plates of grapes and 40 plates of peaches and pears. There were also three plates and a bunch of American sweet chestnuts, a plate and bunch of native persimmons; also some paw-paws. This fruit was contributed by 14 counties — the larger part from Shawnee county. The room was on the ground floor, in the north wing of the state capitol, and was placed at our disposal by the courtesy of Hon. W. C. Edwards, secretary of state. The walls were nicely ornamented by Mr. Bartholomew, of Topeka, with grasses and grains. The total expense was small — no such show was ever made in the state for less. This exhibition was a perfect success, and was visited and examined by at least 10,000 people, and pronounced very fine by multitudes. A nice photographic view of it was taken.

DISPOSAL OF THE FRUIT.

After the show we packed seven barrels and five boxes — a complete assortment of the choicest and best — and sent them to Moeser's cold-storage warehouse, intending to display them on the tables of the Society during its annual meeting in December and in the rooms of the Society during the sitting of the state legislature. The packages were numbered and so assorted as to exhibit a very complete display of varieties when opened. One barrel contained 37 varieties. We also placed two tables in the rooms of the Society, and displayed on them about 75 plates of fruit, all duplicates of varieties put in cold storage. Our intention was to keep a careful record of this fruit, to test the keeping qualities of the different varieties after they came out of cold storage. Some persons assert that apples that have been in artificial cold storage do not keep long enough to be properly disposed of, and one large firm declare they do not want apples that have been in artificial cold storage, and we wished to prove it for our own satisfaction and the benefit of our fruit-growers. We labored under one great disadvantage: much of our fruit was exposed at county fairs before we got it, and some was in cold storage for awhile. All of it was exposed at this show for seven or eight days.

The inferior and speckled fruit was disposed of as follows: Twelve baskets full were distributed through the state-house, and five baskets full were given to the orphans' home, and five baskets spoiled and were thrown out.

Four barrels of this fruit were brought out and exhibited during the annual meeting in December (part of this was returned) and all of it was brought out the last week in January and shown for a week at the "pure-food show"; after which two tables of about 150 plates were exhibited in the rooms of the Society until about March 10, when all were cleared off. Our experience with

this fruit shows that the assertion made by some, "that fruit from artificial cold storage will not stand up long enough to be disposed of," is not true. We found that all the late fall and winter varieties kept in salable condition for 30 days, and, to our surprise, such summer apples as Maiden's Blush, Chenango Strawberry and Black Gilliflower kept up a fine appearance for nearly 30 days. The longest keepers were Lawyer, York Imperial, Ben Davis, and Winesap. Dominie turned brown and appeared as if it could not stand a low temperature.

There is undoubtedly much to be learned about cold storage. Bear in mind, all the above fruit was first exhibited at county fairs; then for eight days during the reunion; then (part of it) four days during annual meeting; then all of it eight days at "pure-food show"; and yet much of it was in salable order for 30 days, exposed on tables where the day temperature ran to 70 degrees with steam heat, and no artificial heat from 5 P. M. until 8 A. M. each night. We hope this autumn to put some fruit in cold storage from the orchard. There were 87 varieties in the above lot, and it was a novelty to see perishable summer apples in February, but it practically demonstrates that cold storage is one of the great hopes of both producer and consumer.

PROCEEDINGS
OF THE
THIRTIETH ANNUAL MEETING,
Topeka, December 9, 10, 11, 1896.

MORNING SESSION, WEDNESDAY, December 9, 1896.

Pres. Fred. Wellhouse in the chair; Deputy Secretary William H. Barnes present. About 50 members in attendance. After being called to order by the president, prayer was offered by Chaplain G. W. Burge, of Lincoln post, G. A. R., after which a few remarks were made by the president, followed by appointment of committees, to wit:

Credentials.—Samuel Reynolds, Lawrence; Frank W. Dixon, Holton; O. A. Anderson, Republic.

Program.—E. J. Holman, Leavenworth; E. P. Diehl, Olathe; A. L. Brooke, North Topeka.

Membership.—Horace J. Newberry, Topeka; Maj. F. Holsinger, Rosedale; B. F. Smith, Lawrence.

Exhibited Articles.—Wm. Cutter, Junction City; A. H. Buckman, Topeka; Dr. J. Stayman, Leavenworth.

Auditing Accounts.—Geo. M. Munger, Eureka; Prof. S. C. Mason, Manhattan; Geo. W. Bailey, Wellington.

Resolutions.—Hon. Edwin Taylor, Edwardsville; A. H. Griesa, Lawrence; E. B. Cowgill, Topeka.

Music.—Horace J. Newberry, Topeka; A. Chandler, Argentine; W. S. Charles, Topeka.

Fruit List.—Hon. Edwin Taylor, Edwardsville. E. P. Diehl, Olathe; F. W. Dixon, Holton.

Acting Secretary William H. Barnes read a few communications, after which “County Fruit Reports” were received and discussed.

On motion of E. J. Holman, Leavenworth county, the communications were sent to the Committee on Needed Legislation.

MAJ. F. HOLSINGER: “I have been to the Pacific coast recently, and from what I saw while there it seems to me that fruit-growing is fast passing. Destruction by insects is a question in horticulture that to me is paramount to all others. In Oregon I found the apples entirely destroyed, and the trees much injured by the oyster-shell bark-louse. They are comparatively free from the codling-moth. The people there are not alive to the destruction caused by these insects; and, although the state pays to have this looked after, they have not yet been able to stop the injurious effects.”

E. J. HOLMAN: “Is it your opinion that the curculio will eventually strike their plums?”

MAJOR HOLSINGER: "There is no doubt. I spoke to the secretary of their state horticultural society about it. I told him they would have to rid themselves of these insects before they could expect to have perfect fruit. They are crazy over the growing of the prune. I was shown, while in Oregon, an immense orchard of 3,000 acres of prunes; I think it is only a question of time when this fruit will be totally destroyed by insects. They do not seem to have any preference. In San Francisco, they (the curculio) seem to favor the prune. When at Riverside, Cal., I noticed that they covered the trees entirely with a species of the ladybug. These would rid the orange trees of scale."

E. J. HOLMAN: "Have you discovered any of this San Jose scale east of the Rocky mountains?"

MAJOR HOLSINGER: "No; but it has been discovered in North Carolina and Virginia, also in Kansas. This scale has proven to be a fungus (?), and it is only a question of time when we can hope to free ourselves from these insects."

E. J. HOLMAN: "Professor Mason, have you at the college had any experience with this scale?"

PROF. S. C. MASON (State Agricultural College): "In Cherokee county, in the neighborhood of Columbus, I believe the scale has appeared, and in trying to rid themselves of it they have been burning every tree in which it is found."

T. A. STANLEY (Miami county): "Miami county last year produced little fruit of any kind. The apple crop was not very large. Some orchards had a considerable crop of apples; mine did not. They bloomed well in the spring, but few apples set. When the wet weather came it seemed to spoil the apples, and they began to drop off, few remaining on the trees, so we had a light crop in Miami county. Peaches started well in the spring, but did not grow or mature well. Pear trees blighted worse and more died from it than I ever knew in Kansas; and one reason why I am up here was to find a remedy for blight. I had trees in good condition that started well in the spring, but in the latter part of the season blight struck them. I would like to know the cause, and a remedy. A freshet in Pottawatomie valley spoiled much fruit, so that this year our crop has not been a good one. Small fruits promised well until that wet spell. It also hurt the grapes. It was during the growing time, and it set them back. I cannot tell the prospect for next year. The apple trees in Miami county have had twig blight worse than usual. I have two or three trees so blighted I doubt if they will put out next spring. The worst, I think, is the Arkansas Black. It is a question in my mind whether this tree will grow again; it is nearly dead. Some early trees are worse than the others. Missouri Pippin, Ben Davis and Winesap seem to hold their own; of Missouri Pippin and Winesap I had quite a little crop. They bloomed well."

DR. J. STAYMAN (Leavenworth county): "Fruit in general has only been about a half crop; apples, in some places, perhaps a full crop. On my home place I have had a heavy crop for a number of years, but on the hill farm it is nearly an entire failure. Strawberries in general good. On my place they were a failure. On the whole, the crop was an average one throughout the county. Pears not an average crop. As regards blight, I think you need not be alarmed. That used to be the principal topic in our remarks. From 1862 to 1864 it destroyed all the pear trees in our county, and I did not care to put out more; but I tried it again, and since have had no blight. They do as well in our county as anywhere. Blight on apple trees is not enough to speak of. Sometimes I find a tree black all over the top, but they get over it and live. I was sent with a committee to see the large orchard of Mr. Griffith, of about 3,000 trees, in Leavenworth

county. It had on a very heavy crop at that time, but was badly blighted. I told him perhaps that would be the last crop he would ever raise. They did die. I just let my trees go. Some of them recovered. Quinces blighted a good deal. Strawberries failed."

GEO. W. BAILEY (Sumner county): "Can't say anything very good in regard to the apple crop on upland. Nearly all our orchards, especially the old ones, are damaged. Good many are dead; cause, dry weather. We have this year had a more favorable season. In regard to rainfall, we have had little the past four years. Our young trees seem to be in fair condition. This year, the low-lands in our county produced some very good apples, but a light crop. The peach crop was fair, and the trees healthy. We had some very fine peaches on our bottom land. Cherries nearly a failure. My first experience with pear blight was this season. I had heard the pear blight was going south. I did not think it would ever attack my orchard. I kept cutting back during the growing season, but that failed this year. Blackberries a good crop. Gooseberries few. Strawberries few. Young orchards are in fair condition as far as I am able to judge."

W.M. CUTTER (Geary county): "The apple crop was poor, excepting where trees were well cultivated; thus showing that good care will prevent blight under favorable circumstances. One of the most complete successes that I know of is an orchard in Riley county, on the poorest of land, subsoiled. Trees are loaded. You could find no better piece of land for an orchard. The good results are attributed to the subsoiler. We have had our usual number of insects and our usual failure with London purple, but, to destroy early insects, we resorted to Paris green; we could use it liberally without injury to the trees. We used as much as six ounces to a barrel of water without harm."

A VOICE: "Did you ever mix with lime?"

W.M. CUTTER: "I have, but not in this case; just Paris green and water. The fruit was remarkably clear of insects, and hung to the trees well. In the Skimmerhorn orchard a big crop was had and sold well. I think our prospect good for an apple crop next year. I think subsoiling had a good deal to do with the success of this orchard. I used Paris green extensively in my orchard and had a poor crop. My orchard had been neglected, while his was well cared for. When I visited his orchard I took a spade and dug down six feet and found where he had cut roots off. There was no soil but yellow clay. It is a wonder how they subsisted. The pear blight has been unusually bad, affecting the Kieffer mostly. Peach planting is going ahead more extensively than ever before, and we are greatly encouraged. Raspberries were a good crop, especially Kansas."

MAJOR HOLSINGER: "On the whole, I have been favorably impressed with the conditions of the fruit crop of Wyandotte county as far as I have learned. I believe the fruit-grower has made money this year. There is a small balance on the right side of the ledger of those who have been giving their attention to horticulture. While in some orchards the fruit was fairly good, others were not as favorable. Strawberries were notably successful. My berries were indifferent, and prices being low, I did not think it worth while to pick them, while my neighbor, Mr. Chandler, and some others, had better results. Raspberries about half a crop, the Kansas leading. I believe the Kansas and Gregg fill the bill as the two best varieties. The Kansas is a remarkable berry. Too much can hardly be said in its favor. It is my favorite. Peaches were a phenomenal crop. They were so prolific that the price fell because of the quantity marketed. Sev-

eral new varieties have come into notice that possibly may become favorites; such as the Ancient Britain, Crosby, etc. Currant crop was a failure; about the poorest crop we have had for several years. Currants have not given satisfaction. I hope for a better crop next year. Gooseberries good crop, and brought a better price. More money in them this year than in other fruit. Cherries hardly a one-third crop. Prices good. I believe the Wragg is the best variety of cherry; originating in Ohio, and having stood that climate, it is considered hardy here. The Dyehouse and Early Richmond are also considered hardy. Plums were only a partial crop. No variety beats the Wild Goose. Of all fruits, the peach is proving the most satisfactory. The peach crop grown around Kansas City is simply wonderful. Some years ago we imagined we could not raise peaches. We went down into the Ozarks to raise peaches; but when we had no peaches down there we raised them near Kansas City. We make more money out of peaches than out of any other fruit crop. Good peaches always sell. In planting peaches we should remember to select a highly colored, hardy variety. The Crosby will stand much less cold weather than the Elberta, and is a more handsome peach. In our markets in Kansas City I find the highly colored peach — something that will take the eye — is the peach that sells, and I recommend highly colored varieties. The success with such peaches will be satisfactory to horticulturists. I have had some experience in propagating seedlings. Some six years ago I received a bag of Salway peach seeds, and propagated them successfully, growing 46 trees. There was not a tree among the whole 46 but what any nurseryman would have said was good enough to propagate from. At the Missouri valley show the 46 trees were represented (by fruit) at one time. I have seen many horticultural displays, but never saw anything similar. I would not advise planting seeds, as a general thing. If you plant the Hale or Troth's — both highly colored varieties — or if you have the Elberta, Chair's Choice, and Salway, you have the very best selection and the hardiest varieties of good peaches, whereas if you plant seedlings you will find many of them worthless. Apples in some of our orchards were pretty good, and comparatively free from codling-moth. I have not found an orchard where the crop was badly injured by the codling-moth. I have no use for spraying to destroy the codling-moth. I did not spray my orchard during the past season. The quince on some elevations does nicely. I believe our peaches will stand a much lower temperature than ordinarily supposed. My Seckel pear trees were destroyed last year; had some fine trees, but lost them all with blight. The Kieffer is the pear to plant for money. I have some fine trees, which have returned me \$200 in 11 years."

GEO. M. MUNGER (Greenwood county): "I believe, from what I can learn, the conditions are poor. No fruit of any kind. Don't grow many apples. The orchards are in poor condition. Dry weather for a series of years."

GEO. W. GLICK: "From what I can learn, the orchards in Atchison county were very full, and a large amount of fruit marketed, at low prices. Spraying was used successfully. I think this the only way to prevent insects. I have 10 acres in orchard. I have 100 bushels of apples in pile now. Two hundred hogs run in my orchard until gathering time; then they are shut out. Many apples fell before they matured. Never knew them to drop so freely."

O. A. GARDNER (Republic county): "We have had dry seasons for three years. Half the apple trees in Republic county are dead. While some had good apples, the codling-moth is at large. Quite a lot of peaches, mainly seedlings, were grown. I don't suppose there were a dozen strawberry patches that produced enough fruit for family use."

E. J. HOLMAN: "In Leavenworth county the interest in the apples is greatest. Judge Wellhouse started the fever years ago, and it has not yet abated. The crop this year was about one-fourth. Market opened at \$1 a barrel, and then went down to 40 and 60 cents. Many apples wasted this year; could not be delivered for the price. The apple crop was so large in Michigan, New York, and the New England states (probably the largest ever grown), that the price ran down to so low a figure competing with us, that our apples were not profitable. The cold storage is about full. Apple-growers in Leavenworth county have come to the conclusion that they will stop raising Ben Davis apples. A new variety is just now being planted, the "Mammoth Black Twig." A gentleman from New York says it is devoid of color, and they will wish they had not planted it. This apple hails from Arkansas. As to not being sufficiently colored, I have heard fruit men say they have seen the Black Twig presented in winter, and it made the finest appearance of any fruit they ever saw."

MAJOR HOLSINGER: "What advantage would it have over the Winesap?"

E. J. HOLMAN: "There is no stronger growing tree than the Winesap. It outgrows the Ben Davis; outgrows the most vigorous tree. The other fruits are about as usual. We have had more peaches the last few years. I would never grow a Crawford while there is an Elberta. Another peach introduced by Hale is the Crosby. I doubt whether it is any hardier than the Elberta or Crawford. It is an immense bearer, and should be thinned. It is the highest quality peach I know of. The last year or two, yellow peaches are becoming more popular. Those exhibited are most all yellow. We still have to rely on old varieties. We have not found any to take the places of Large Yellow York, George the Fourth, and the Old Mixon Free. Ward's Late has a beautiful cheek on it. Salway is not colored at all like the Elberta. The Smocks are a class of peaches that ought to be colored, because they are classed with the Elberta. I believe that the Japan plums we have are an improvement on our old varieties of plums."

MAJOR HOLSINGER: "What variety of Japan plums would you recommend?"

E. J. HOLMAN: "I would recommend the Ogan and Botan. There is also the Kelsey's Japan. I am not prepared to indorse this variety as sufficiently hardy. It is an immense plum; an exquisite variety that will surprise the people. There are several other varieties, notably the Willard and Burbank. There is a good deal in studying and selecting plums these days. The probabilities are that we will find Japan plums that will be productive, and likely to do well over the whole country. I have had no experience with the Stoddard. Since all fruits have become plentiful in Leavenworth county, there is little profit and not much attention paid to growing small fruits. In strawberries, raspberries and gooseberries there is so much competition from the South, that when ours come in prices are down; hence the interest in small-fruit growing has greatly diminished."

A. H. GRIESA (Douglas county): "I have tried both the Arkansas Black and the Mammoth Black-Twig apples, but not being informed as to their value, I wrote to Wing Bros. and asked for their opinion. Their reply was that the Arkansas Black was being discarded, or top grafted with other varieties, on account of the black rot."

J. W. WILLIAMS (Jackson county): "Speaking from observation, not from experience, there was an ordinary crop of peaches. The apple trees are in healthy condition, especially the Jonathan, Missouri Pippin, and Winesap. I noticed some blight among apple trees. In my first experience with blight, I was somewhat alarmed, but it (the blight) did not amount to much. I visited

one orchard in Douglas county this fall where the man was an enthusiast on the subject of spraying, and he had the finest apples I ever saw. He gathered 500 or 600 bushels, free from codling-moth, and in fine condition. The pear crop of our county was very light. The pear blight was the worst I ever saw it. I have few varieties. The peach crop of our county was fair. Seedling peaches, as far as I observed, were poorly developed. Plum crop was a failure, and I think one entire failure would be a good thing to rid us of the curculio. Pear crop fairly good. Cherry crop pretty light. Gooseberries almost a failure; the first year that I have had a failure. Currant crop about the same, and very late; cannot account for it; bloomed pretty well; I know I had few currants. Strawberry crop fairly good. Raspberry crop fair. Blackberries so numerous that I would not plant any more. The present prospect for all kinds of fruit is good. Strawberries never better."

E. P. DIEHL (Johnson county): "In Johnson county we had about a 40-percent. apple crop. We shipped many east, west, and south. The peach crop was good. Cherries about half crop. Plums an entire failure. Strawberries, blackberries and raspberries about a half crop. Never saw pear blight as destructive as this year. One orchard with about 400 trees was a year ago in fine condition, and I thought to myself, 'Oh, if I just had an orchard like that!' The blight struck it this year and laid it waste; almost entirely dead."

W. T. MCCLURE (Johnson county): "I am only a young fruit-grower. I started three years ago the coming spring, planting raspberries, mostly Gregg; about half a crop this year, fairly good. Apples, I have none; I set out some young trees this year, and have a splendid growth. I believe in doing this well; my father taught me to dig holes three feet deep, and put something good in the bottom of each; my trees grew splendidly. All small fruits are growing finely. I believe we should make a special study as to what varieties will best grow in different counties, and plant them. My experience in Johnson county has been good, and while I believe Leavenworth county is a better apple county than Johnson, yet we grow some pretty good apples. The further south you go, the more you are subject to worms and bugs. I believe in mulching. A great deal of fruit might be saved by mulching. I mulched my strawberries last time right away after the first freeze. Don't believe in too heavy mulching; it holds too long, and causes a kind of rot. In the spring, I partially open up the line of strawberries and put the mulch on each side, so as to hold up the fruit. The question has been asked, what causes blight? My opinion is, that electrical storms have much to do with it. It passes through the orchards, attacks the limbs, the leaves are dried and burned; that stops growth."

DR. G. BOHRER (Rice county): "I cannot report a very good condition in our county. We were struck not only by drought, but by hot winds, and early in the season by a hail-storm. Very few apples of any size were gathered. The Ben Davis succeeded best with me. I took 10 bushels off 300 trees. In regard to pears, I never saw pear blight as bad as this year. A great majority of the pear trees I have in my orchard are damaged so that I think them not worth leaving, and expect to take them up. I have about concluded to raise no more pears. Raspberries a partial success. The red raspberry has been a success on only one or two occasions. The blackberry crop seems to be the best. Good many grapes this year. Where men watered their grape-vines during droughts they did well and produced grapes in abundance, I think the Concord the most successful grape cultivated in our county. Perhaps it is all over the state."

T. W. HARRISON (Shawnee county): "I believe the apple is the king of fruits.

after all; that is my experience this year. I raised about a half crop; fine in quality and nearly perfect. My Jonathans, Missouri Pippins and Winesaps did well. Have not tried the Gano. The Ben Davis seems to have run out; they do not seem to be what they once were. I let my orchard take care of itself. An old apple-grower went through my orchard and said my trees looked fine, and wanted to know why they looked better than his. I told him he petted his orchard too much. He was always spraying or pruning or working in his orchard. I pay little attention to mine. The ground is in red clover. Cut it once a year, and let it lie on the ground as a mulch. Do n't think the moles harm anything. I think the apple tree feeds near the surface. If you keep the surface in good condition the trees will thrive. Peach trees grow all right among the apples, and produce fruit fair in size and of good quality. Cherries fair; not as good as last year."

B. F. SMITH (Douglas county): "Apple crop about one third. Peach crop about two-thirds. Cherries a very light crop. Pears in old orchards about one-third crop. Plums about one-third crop. In the old pear orchards there was very little blight. Of small fruits we expected a large crop, but got about one-third. Blackberries a failure. Gooseberries and currants, none to speak of. We had about 438 barrels of pears; varieties, Seckel, Buerre d'Anjou, Duchess d'Angouleme."

F. W. DIXON (Jackson county): "I will begin with my favorite, the strawberry, and in my opinion the best of all fruits. I manage two fruit farms: one near Holton, the other in the southern part of the county. The soils are entirely different. Strawberries in Holton about one-sixth of a crop; prices so low it is discouraging to grow them. I do n't think fruit in any line has been over-productive. Raspberries about the only successful crop. Variety, Kansas. Blackberries, I have a small patch of the old Kittatinny that yields well. Cherries about two-thirds crop. Apricots dropped off when about the size of quails' eggs. Plums, Botan and Burbank pretty good crop. Peaches on old trees almost a failure; on young trees a good crop. Trees two years old yielded about two bushels per tree. Had about 100 trees of that age. The old Crawford is worthless. The Old Mixon Cling is good, so is the Elberta. The Smock is an excellent yellow peach. As to pears, the Kieffer only did real well. The Bartlett did not blight with us, and yielded a fair crop. Grapes a fair crop. Apples in some orchards good crop; in others just fair, according to the attention given the orchard. The Winesap and Janet both yielded fairly."

A. CHANDLER (Wyandotte county): "Strawberries: they were full of blossom and yielded about a one-third crop. Raspberries: about a 75-per-cent. crop; present condition fine; our leader is the Kansas; the Gregg is doing well. Another variety called Progress is doing well. Blackberries: we had an enormous crop of Snyder, Taylor, and Early Harvest. Grapes: good crop; price low. Plums: had a good crop of Wild Goose. We got about 75 cents per crate or \$1.50 per bushel. My arithmetic is considerably 'off' if that does not beat 15-cent. corn a long ways. We are trying several new varieties, Botan, Burbank, and Stoddard. Orchards on our place are in good condition. No blight to amount to anything. Young orchards are thrifty and growing, and have grown remarkably the past year, with little blight. We are cursed with about 90 varieties too many. What has already been said in regard to pears is sufficient. The Kieffer is leader. The Bartlett and Flemish Beauty blight some."

H. L. FERRIS (Osage county): "Apples about a 25-per-cent. crop. I think I had a 10-per-cent. crop. Trees bloomed well, and full, and then dwindled until

gathering time. Hail destroyed the crop in some localities. Almost all apples bear hail marks. Quality rather poor. Peaches probably a half crop, the seedlings scabby. People are less interested in fruit than they used to be. More are engaged in corn and stock-raising. Cherries tenth of a crop. Young trees a failure over the country, as far as I know. Small fruits receive little attention. Raspberries nearly a full crop. Strawberries very light. Grapes pretty fair crop; Concord the leader."

A. M. MACKEY (Jefferson county): "Apples not a full crop, in old orchards. Young orchards in very good condition; fair crop; good quality. Pear crop failed. Cherry crop medium. Small fruits only a fair crop."

E. M. GRAY (Jefferson county): "Apples about half a crop, excepting Jonathan, which bore a full crop. Pears and peaches were a full crop. Raspberries, blackberries and strawberries about half a crop, excepting the Kansas raspberry, which bore a full crop. Small fruits have made a good growth on well-drained land, and promise a good crop for next year. Most fruit-trees the same. Choice summer apples were in good demand this season, as well as peaches. Apples sold in Kansas City for from 75 cents to \$1 per bushel. Peaches, \$1 to \$2.50 per bushel. Few farmers have set out enough summer apples, and the supply does not equal the demand. More should be planted of such varieties as Red June, Yellow Transparent, Jeffries, Chenango Strawberry and Early Strawberry ought to be more plentiful, for selling on fruit stands."

PROF. S. C. MASON (Riley county): "Apple about one-fourth crop, varying. Peach crop heavy and good. We are much encouraged as to this crop. Seedlings scabby, and poor in quality. Grape crop very good, price low. Raspberries, strawberries and cherries fair."

DR. G. BOHRER (Rice county): "Some had a good crop of peaches. Mr. J. S., of Alden, certainly had a good crop. He sold \$1,000 worth, at 40 to 60 cents a basket. The trees were injured by drought. Cherry trees made a good growth."

EUGENE TILLIEUX (Greeley county): "When I first settled in Greeley county, four years ago, it was said that fruit could not be grown so far west. I thought I would find out by planting. I planted a few cherries, plums, apricots, pears, and gooseberries, and irrigated them, and have had splendid success, as far as growth is concerned. It took time to produce fruit. The cherries bore the next season, and in the four years they have been growing I have had plenty of cherries, a few plums, pears, and apples. Apricots did not mature, because of two electrical storms, which damaged them greatly, stripping off the branches. Some of the plum trees were damaged, the blossoms and young fruit destroyed; but of pears and cherries I had an abundance. I have 20 varieties of apples, 15 varieties of plums, five or six of pears, six or seven of grapes. I had a few bunches on the Concord. I put out half an acre of strawberries; I had trouble in getting them started. The plants were fine, but the dry climate and hot winds worked against me, so I was able to save only 20 plants, but have increased to millions since. They are now as hardy as weeds. I never saw anything so productive in my life. Some stools had as many as 17 large berries in a cluster. I have planted two varieties since; also some nectarines, a few kinds of peaches, two varieties Japanese plums, and others. I am 3,500 feet above the sea-level. I think I have solved the problem of fruit-growing. I pump my water by windmill. I have also planted about 500 blackberry plants. That is the only crop I call a failure. I have the Crosby peach. I am having great success with

vegetables. I have raised, the last four years, an abundance of tomatoes, and cabbage by the ton, and most everything in that line."

W. B. WILLIAMS (Cloud county): "Apple and peach trees are now in fair condition. We had a fair crop of apples and peaches in Cloud county this year. The varieties which succeeded best with us were the Jonathan, Winesap, and Missouri Pippin. If I were going to plant 5,000 winter apples, they would be of these varieties. The last several years of drought have about killed the small-fruit plants, excepting on farms that were irrigated last year and those on low bottom land. Wherever strawberries have been planted, and could get moisture, they have proved a splendid success. Cherries light. Plums almost a failure. Raspberries do well where they have moisture. I have as hard work to raise blackberries as it was to kill blackberry bushes for my father. I tried everything I could think of to get rid of them at father's, but did not succeed. I met a former schoolmate the other day, and he said the old blackberry patch is there yet. I have tried very hard to raise blackberries the past 15 years, but have been no more successful than I was in trying to kill that patch for father."

Mr. McCLELLAN: "To kill a blackberry patch, turn in hogs; they will kill it in one or two years."

AFTERNOON SESSION, December 9, 1896—1:30 P. M.

Called to order by president.

A letter was read from the secretary of the American Pomological Society requesting the Kansas Horticultural Society to take a life membership in said American Pomological Society, and this the Society decided to do, and ordered the secretary to attend to it.

County Fruit Reports (continued).

JAMES SHARP (Morris county): "The fruit prospect and condition of the trees in orchards in my county is not what we would like. Many orchards have died out during the past two or three seasons, and many varieties which should have borne dried up without bearing. Orchards favorably situated are in very good condition. My judgment is that without cultivation in my county fruit-growing is not a success. Have not had much experience with small fruits."

CAPT. HENRY BOOTH: "I am greatly interested in the question of raising fruit in the Arkansas valley. Have had some experience in apple raising in that valley. As far as my experience goes, it is as good a place to raise apples as any part of Kansas. I have come to the conclusion that to insure crops regularly it will be necessary to irrigate orchards on high lands, and with irrigation they do remarkably well. In the valley this seems unnecessary. My old orchard has about 300 apple trees; my young orchard 700 or 800. I think that I have as large and fine looking trees as I have seen in any part of the state. In that river bottom, especially where there is a deposit of clay or clay sediment, they do remarkably well. With me they have borne every year excepting one, when they were frozen in May. I have been troubled with them during the last four years falling off in the heated term of July and August. The first serious trouble was three years ago. We had a flood of water covering the earth two or three feet, and they fell pretty badly; I attributed it to that. The year before I gathered 1,000 bushels of good apples, mostly Winesap and Jonathan. I have some Missouri Pippins. They bore well, but were small. For three years they have been too small for use, but they hung on the trees as thick as berries. It was quite a job to pick such apples. The year before they were better. We then had a

slight increase in the rainfall. I thought perhaps the flood helped their size. I have clung to the four varieties, Ben Davis, Winesap, Missouri Pippin, and Jonathan. We have no place for keeping apples except in cellars. We get good prices for them. Never sold good apples for less than 65 cents; from that to \$1 a bushel. I have only a few pear trees. They have borne remarkably well every year. This year I had trouble with blight. My trees are just 20 years old; varieties, Bartlett and Duchess (Angouleme). The trees grew well and bore well. In fact, they did the best of any of our trees. One trouble is, falling off in August and September."

B. F. SMITH: "Is your orchard sheltered by rows of trees?"

CAPTAIN BOOTH: "Yes; two rows of cottonwood and four rows of catalpa. I have now cut out a row of cottonwoods on the south and west. The leaves never seem to curl in the bottom, where they have plenty of moisture, but two years ago it was so hot there that it burned the apples, discoloring them. More people are planting orchards now than for 10 or 15 years past. They take care of them by pond-and-pump irrigation. They have recuperated old orchards by letting water on them. These trees do not grow as well as in the valley. My Vandevere Pippin trees are 40 feet spread. The whole Arkansas valley is adapted to apple-tree growth. I prune about once in three or four years. I do this mostly to get them out of the way -- the branches; they bother me so in getting among them. In the spring run through with a cultivator, and afterward with a revolving harrow."

T. A. STANLEY: "Have you any trees that have been sun-scorched?"

CAPTAIN BOOTH: "Not many."

T. A. STANLEY: "I have a number of trees that have been ruined by sun-scald. Where my Missouri Pippin, Winesap and Ben Davis limbs were on the ground I found it better to let them lie."

SAMUEL REYNOLDS: "The captain referred to the Vandevere Pippin, which reminds me of a tree that I have of that variety. It was planted in 1858, 38 years ago. It is now 40 years old. It measures, I think, 12 feet around the bottom of the trunk. The branches spread 100 feet."

M. MOHLER: "When I first went to Osborne county, 25 years ago last June, we were going to have everything in the line of fruit in a very short time — that is, we thought so. I have planted three orchards on my farm; lost two, but have now succeeded in getting very good apples and cherry trees. I tried a few pears, but did not succeed. My trees are in very good condition and have been bearing for three years. We do not have enough moisture in the early part of the year to give tree growth. When trees have become of good size they require much moisture. I have noticed old trees dying from lack of moisture. One man showed me three trees in his yard which had been watered, and three which had not. The three which had been watered bore an average of three bushels each. The trees which had not been watered had not an apple on them; the next year he thought they would be entirely dead. It was the third year of drought, and the trees had got to a point where they had to have moisture or die. Unless we irrigate in Osborne county, in my opinion there is little use in planting an orchard."

W. B. WILLIAMS (Cloud county): "I have a preventive for sun-scald. Cut tarred paper in strips crossways, just broad enough to form a tube around the tree, and tie it there with a string or small wire; let the lower edge of this tube go half an inch or so in the ground; this will effectually prevent sun-scald. Make the tube large enough to not interfere with the growth of the tree, and it

may remain there three years. It prevents sun-scald, and the tree grows faster. It also prevents borers from getting to the tree. At least, they did not get into my trees. The tar paper is offensive to them; they will not go about it. I never saw a bug of any kind on that paper, and I watched it closely."

S. J. BALDWIN (Nemaha county): "In regard to crops of fruit this year: First, the apple was a medium crop. Winesaps were our best. The Missouri Pippin was second best in general over Nemaha county, Jonathan third, although the Jonathan dropped off a good deal. Orchards that were thoroughly cultivated, and orchards that were on the north, northeast and northwest slope, have not dropped their apples like the orchards on the level or a southern slope, or that were not cultivated. Our Ben Davises were a failure. Our Winesaps were usually fine. In regard to pears, the Kieffer was the best, although the Bartlett and Duchess d'Angouleme did very well, and the dwarf Seckel. Home-grown pears sold for \$1 per bushel this year. Of peaches, those who had such standard varieties as the Alexander and the Amsden had good crops. Some of the new sorts did well. The Champion is one of our finest, and ought to be more extensively planted. The Elberta does not give satisfaction. The wood does not ripen like the Crosby. This was not exactly a plum year, but I raised a good many, as I devoted much time to them. The Wild Goose and Weaver in American sorts, and Botan and Burbank in the Japan sorts. We had some fine specimens, equal to those of California. The Burbank has fruited three or four years, and gives perfect satisfaction. We had a fair crop of raspberries, led by Gregg and Kansas; I have discarded the Mammoth Cluster. Blackberries have been a failure four out of five seasons; they often form and get two-thirds grown, when a drought comes; unless mulched thoroughly they are not profitable. I am growing about 25 varieties of strawberries. The Greenville, Warfield and Robinson I consider the best of the 25."

J. W. ROBISON: "Did the Champion peach crack and rot with you?"

S. J. BALDWIN: "No, sir; they were as fine peaches as I ever saw."

J. W. ROBISON: "In early spring we had good prospects for an apple crop. They set well. When dry weather came they began to drop off from lack of moisture. The result was that we had few apples on the trees when the time came to gather and put away. Last winter was mild, with not enough moisture to carry them through the year. Blackberries and raspberries were the only fruit that suffered from frosts. Apple trees were never more thrifty than this year. I wrap my trees with screen wire, cut in strips 18 inches wide, tying them around the trees, leaving room for growth. I think leaves drifting in, if not removed, would start a growth of roots. Our peaches were a fine crop. Trees in splendid condition. Most fruit-growers are in favor of planting the large peach. The reason, I think, is, or at least my conclusion is, that the sun penetrates the thin layers of a small peach, while a large peach has more covering, which the sun fails to penetrate, and they ripen better and taste better. A great many small peaches are so burnt on the upper side that they are entirely worthless. All varieties of apples bore a fair crop, the Jonathan, Missouri Pippin and Wine-sap in the lead. All alike failed to hold the fruit on the tree for winter use. The Whitney No. 20 bore a fair crop. They grow in shape like a nicely rounded haystack. They have a very good flavor, resembling the Wealthy. Those two apples ought to be in every farm orchard. Plums light; Mariana not bearing well, Wild Goose a few, Miner about a half crop. Strawberries good. We had the kind of a season that makes a corn crop abundant, but not good for maturing apples. We were short of rain."

A. H. GRIESA (Douglas county): "From experience I find that a dirt mulch is the cheapest. Where the gumbo opens down five or six feet in large cracks, the trees in that orchard are past usefulness. Where they are mulched with leaves and trash they do fairly well; anything to prevent the ground from cracking. There is nothing so helpful to an orchard as one of the legumens (peas and clover). I think the trees grow better."

T. A. STANLEY: "How do you trim your trees?"

A. H. GRIESA: "I set out a 2-year-old tree $2\frac{1}{2}$ feet or 3 feet high. I shorten in the top, take out some of the limbs, and place it leaning to the southwest. I have some trees on my farm that are 30 years old."

T. A. STANLEY: "Would not red clover be of benefit?"

A. H. GRIESA: "Any of the legumens would be a benefit. I had as fine a stand of clover as could be seen anywhere, but in two months it rotted, and could be pulled up by the roots. Alfalfa is the best and hardiest. It needs the full benefit of the sun, and not to be in a shaded place. In speaking of the legumens, I believe it would pay to sow the southern cow-pea, and get a growth of that plant to start up the fertility in the field for the next year. I believe it to be the cheapest fertilizer that can be found. The alfalfa is better than the red clover, because it roots deeper and is of much more rapid growth."

BUTLER COUNTY FRUIT REPORT.

Reported by William Snyder, Towanda.

Orchards.—Condition: All classes and varieties of fruit-trees are in good condition. Twig blight prevailed to some extent, but not very damaging.

Valuable, Hardy, Productive Varieties.—Apple: Missouri Pippin, Ben Davis, Winesap, Rome Beauty, Gilpin, Grimes's Golden, McIntosh's Red, Demine, Ortley, Early Harvest, and Red June. Peach: Hale's Early and its seedlings. Cherry: Early Richmond, Montmorency, and Common Morello. Plum: Wild Goose.

New Promising Varieties.—Apple: Wolf River, Arkansas Black, Mammoth Black Twig. Plum: Japanese varieties.

Vineyards.—Bearing vines are in excellent condition; the Concord is still in the lead; Niagara and Worden are doing well.

Small Fruits.—Condition: Blackberry, strawberry and gooseberry good. Varieties doing well and most profitable: Blackberry, Snyder, Kittatinny, Erie, and Early Harvest. Strawberry, Chas. Downing. Gooseberry, Houghton. Raspberry and currant do not succeed with us.

Crops in 1896.

Apple: About 15 per cent. of a full crop, and of poor quality. Due to the ravages of the canker-worm and codling-moth. One well-sprayed orchard gave a good crop of excellent fruit.

Peach: Loaded with fruit, but excess of moisture caused early varieties to rot on the trees; and the late were poor, owing to dry weather.

Plum and cherry: Almost a failure, owing to cold rains and the curculio.

Grape: A full crop of salable fruit.

Blackberry and strawberry: A fair crop of fine fruit.

Insects: Canker-worms were numerous and many orchards were stripped of foliage and fruit. The codling moth was abundant and destructive.

Insecticides: Have been used with excellent results. There is no longer any question of their efficacy in destroying insect life.

FRUIT REPORT OF ALLEN COUNTY.

The apple crop of 1896 did not make more than a 10-per-cent. crop. The early sorts matured and were sufficient for home use. Winter varieties rotted badly.

Strawberries, raspberries and blackberries gave us good crops.

Grapes were good, with a very small per cent. of rot.

Pears, a light crop, excepting Kieffer and Le Conte, which did better than usual. Blight was not as bad as usual.

Peaches bore a fair crop, with some rot, but not as bad as in many previous seasons. Tree growth has never been better, and the prospects for next season are very promising.

Allen county has a live horticultural society of 125 members.

Greetings were sent to the Missouri State Horticultural Society, now in session in Marceline, Mo.

Revision of fruit lists was now taken up.

Wm. CUTTER suggested that we take up the apple list first.

PRESIDENT WELLHOUSE suggested that each member make out a list of what he would recommend for the commercial orchard.

E. B. COWGILL said this was one of the most important features of the meeting. "It is very important that we know what is good for any locality. We can get no more valuable information than this, and have it definitely understood."

T. A. STANLEY moved that each individual make a list of his five favorites, giving his name and address, and hand same in to the secretary.

On motion of Edwin Taylor, a committee of three was appointed to tabulate this ballot, and report.

Committee: Edwin Taylor, E. P. Diehl, and F. W. Dixon.

Committee reported as follows:

COMMERCIAL ORCHARDS.

List of Winter Varieties.

Ben Davis	44 votes.	Huntsman	2 votes.
Winesap.....	42 "	Mammoth Black Twig.....	2 "
Jonathan.....	41 "	Early Harvest.....	2 "
Missouri Pippin.....	40 "	Gilpin.....	1 "
Gano.....	30 "	Red Winter Pearmain.....	1 "
York Imperial.....	18 "	Salome	1 "
Genet.....	12 "	Rome Beauty	1 "
Smith's Cider.....	8 "	Ortley	1 "
Maiden's Blush.....	5 "	Wagener.....	1 "
Grimes's Golden.....	3 "	White Pippin.....	1 "
Willow Twig.....	3 "		

Summer and Fall Varieties.

Early Harvest.....	19 votes.	Red Astrachan.....	4 votes.
Red June.....	13 "	Golden Sweet.....	2 "
Maiden's Blush.....	12 "	Keswick Codlin.....	2 "
Chenango.....	6 "	American Summer Pearmain,	2 "
Yellow Transparent.....	5 "	Wealthy.....	2 "
Cooper's Early White.....	5 "	Orange Pippin	2 "
Duchess of Oldenburg.....	4 "	Summer Swaar	1 "

Fall.

Maiden's Blush.....	20 votes.	Hay's Wine.....	1 vote.
Grimes's Golden Pippin.....	13 "	Summer Rambo	1 "
Rambo	10 "	Munster	1 "
Jonathan	10 "	Fall Pippin.....	1 "
Pennsylvania Red Streak.....	3 "	Northern Spy.....	1 "
Cooper's Early White	3 "	Rome Beauty.....	1 "
Lowell.....	3 "	Hubbardston's Nonsuch.....	1 "
Fameuse.....	3 "	Huntsman's Favorite	1 "
Fall Wine.....	2 "	Sweet Russet.....	1 "
Jefferis.....	2 "		

List for Family Orchard.

Jonathan.....	25 votes.	Gilpin	1 vote.
Winesap	24 "	Golden Sweet.....	1 "
Maiden's Blush.....	22 "	Fall Pippin	1 "
Early Harvest	21 "	Newtown Pippin.....	1 "
Red June.....	15 "	Sweet June.....	1 "
Missouri Pippin.....	13 "	Jersey Sweet.....	1 "
Grimes's Golden Pippin.....	13 "	Lansingburg	1 "
Ben Davis.....	12 "	Whitney No. 20.....	1 "
Rawle's Genet	12 "	Red Astrachan.....	1 "
York Imperial	11 "	White Winter Pearmain.....	1 "
Rambo	10 "	American Summer Pearmain,	1 "
Chenango Strawberry.....	8 "	Minkler	1 "
Cooper's Early White	8 "	Yellow Bellflower	1 "
Yellow Transparent	7 "	Dominie.....	1 "
Jefferis.....	6 "	Sweet Rambo	1 "
Huntsman's Favorite	5 "	Pennsylvania Red Streak....	1 "
Smith's Cider.....	4 "	Stark.....	1 "
Wealthy.....	4 "	Lawver.....	1 "
Milam.....	3 "	Lowell	1 "
Rome Beauty.....	3 "	Fulton	1 "
Gano.....	3 "	Roman Stem.....	1 "
Red Winter Pearmain.....	2 "	Red Winter Sweet	1 "
Willow Twig	2 "	Primate	1 "
Fameuse	2 "	Klepsroth.....	1 "
Benoni	2 "	Garretson's Early	1 "
Fink	2 "	Red Betigheimer	1 "
Duchess of Oldenburg	2 "	Wagener.....	1 "

Pears.

Seckel.....	18 votes.	Howell.....	2 votes.
Kieffer.....	17 "	Sheldon	2 "
Bartlett	14 "	White Doyenne.....	2 "
Angouleme	14 "	Early Tyson	1 "
Anjou	9 "	Clapp's Favorite	1 "
Buffum.....	3 "	Langworth's Seedling.....	1 "
Flemish Beauty.....	3 "	Atkinson's Winter	1 "
Claireau.....	3 "	Garber	1 "

Cherries.

Early Richmond.....	29 votes.	Wragg.....	9 votes.
English Morello.....	27 "	Governor Wood.....	2 "
Montmorency.....	24 "	Late Richmond.....	1 "
Dyehouse.....	9 "	Napoleon Biggareau.....	1 "
Ostheim.....	9 "	Empress.....	1 "

Plums.

Wild Goose.....	24 votes.	Robinson.....	2 votes.
Abundance.....	11 "	Stoddard.....	1 "
Damson.....	9 "	Mariana.....	1 "
Burbank.....	7 "	Satsuma.....	1 "
Miner.....	7 "	Egg.....	1 "
Botan.....	5 "	Washington.....	1 "
Lombard.....	4 "	Weaver.....	1 "
Chickasaw.....	2 "	Quaker.....	1 "
Pottawatomie.....	2 "		

Apricots.

Russian.....	6 votes.	Harris.....	1 vote.
Early Golden.....	3 "	No apricots.....	10 "
Moorpark.....	2 "		

Grapes.

Concord.....	30 votes.	Primate.....	1 vote.
Worden.....	23 "	Magnate.....	1 "
Moore's Early.....	15 "	White Beauty.....	1 "
Niagara.....	8 "	Woodruff.....	1 "
Catawba.....	5 "	Cynthiana.....	1 "
Pocklington.....	4 "	Ozark.....	1 "
Goethe.....	4 "	Brighton.....	1 "
Moore's Diamond.....	3 "	Wyoming Red.....	1 "
Delaware.....	3 "	Ives.....	1 "
Dracut Amber.....	3 "	Lady.....	1 "
Agawam.....	2 "	Lady Washington.....	1 "
Telgraph.....	2 "	F. B. Hayes.....	1 "
Elvira.....	2 "	Green Mountain.....	1 "
Champion.....	2 "	Martha Washington.....	1 "
Supreme.....	1 "	Salem.....	1 "
Early Victor.....	1 "	Prentiss.....	1 "
Osage.....	1 "	Early Ohio.....	1 "
Paragon.....	1 "		

Blackberries.

Snyder.....	19 votes.	Ancient Britain.....	2 votes.
Early Harvest.....	17 "	Hiatt.....	2 "
Taylor.....	11 "	Snyder No. 2.....	1 "
Kittatinny.....	8 "	Durkee.....	1 "
Lawton.....	5 "	Wilson.....	1 "
Erie.....	4 "	Snyder.....	16 to 1 "
Ohio.....	2 "		

Raspberries.

Kansas	24 votes.	Mammoth Cluster	2 votes.
Gregg	13 "	Hopkins	2 "
Progress	8 "	Prentiss	2 "
Cuthbert	7 "	Souhegan	1 "
Turner	5 "	Doolittle	1 "
Thwack	5 "	Hiatt	1 "
Queen of the West	4 "	Miller's Red	1 "
Palmer	4 "	Brady	1 "
Egyptian	3 "		

Strawberries.

Warfield	18 votes.	Bisel	2 votes.
Captain Jack	17 "	Wilson	2 "
Crescent	16 "	Clyde	1 "
Parker-Earle	13 "	Ellenson	1 "
Bederwood	9 "	Naomi	1 "
Robinson	8 "	Miner	1 "
Gandy	8 "	Glendale	1 "
Bubach	6 "	Lady Rusk	1 "
Windsor Chief	5 "	Edgar	1 "
Chas. Downing	4 "	Shuster	1 "
Woolverton	3 "	Manchester	1 "
Brandywine	3 "	Martha	1 "
Haviland	3 "	Boynton	1 "
Stayman	2 "	Eureka	1 "
Splendid	2 "	Greenville	1 "
Burbank	2 "	Marshall	1 "
Lovett	2 "	Paris King	1 "
Jessie	2 "	Sandro	1 "

The president gave a tabulated list of places where annual and semiannual meetings have been held since the organization of the Society, as follows:

Annual Meetings.

Topeka	3 times.	Burlingame	1 time.
Lawrence	4 "	Parsons	1 "
Emporia	3 "	Marion	1 "
Ottawa	3 "	Hutchinson	2 "
Manhattan	3 "	Paola	1 "
Holton	4 "	Beloit	2 "
Leavenworth	1 "	Winfield	2 "
Osage Mission	1 "	Fort Scott	2 "
Wyandotte	1 "		

Semiannual Meetings.

Holton	3 times.	Hutchinson	1 time.
Olathe	2 "	Winfield	1 "
Humboldt	1 "	Clay Centre	1 "
Valley Falls	1 "	Junction City	1 "
Fort Scott	1 "	Oswego	1 "
Highland	1 "	Wichita	1 "
Abilene	1 "	Belleville	1 "
Garnett	1 "	Iola	1 "
Beloit	1 "	Grasshopper Falls	1 "

FROM THE QUESTION BOX.

QUESTION: *Is wet land best suited to orchard permanence?*

JUDGE WELLHOUSE: "Moist land is always preferable, if not too wet. A great deal of land in this state is so wet that fruit-trees are damaged. When a tree is in winter quarters, and the ground becomes very dry, it is almost sure to die. Trees have been damaged more from cold in excessive dry weather than from any other cause. When our trees go into winter quarters, we want them filled with sap. Professor Burrill, of Illinois, claims that it takes 250 gallons of water daily to supply a large apple tree with sufficient moisture. On that basis it requires 50 to 60 inches of water per annum to supply an orchard with all the moisture it needs, with no evaporation or wastage. To keep an orchard to its full capacity of fruit bearing requires at least 50 inches of water during the growing season, and I know no place in the apple belt that supplies that amount of water; consequently the trees must adapt themselves to a lesser quantity."

QUESTION: *Does swine grazing injure orchards?*

J. W. ROBISON: "Not if the hogs are kept out of it. It is death to an orchard to let hogs in. To let them rub against the trees closes the pores, and growth ceases. We notice in the newspapers that fish oil, axle grease, etc., keep off rabbits. I tried using axle grease two years. You could see the mark around where the oil had been, and note where growth had stopped below this mark. By washing this with soap, we were enabled to get the trees to grow again. Hogs, as I stated before, will, by rubbing, close the pores. The tramping hardens the soil and shuts out any percolation of water into it. As well plant a tree in the middle of the road as where hogs have been. They, of all animals, tramp the ground hardest."

SAMUEL REYNOLDS: "Would pigs injure the soil?"

T. A. STANLEY: "I have had experience in this, yet while I do not know anything about the gentleman's land packing, I believe it benefits some orchards to run hogs in them. I tried it on an orchard that had ceased bearing. I inclosed the orchard and put hogs in for a year or more. New growth started on the trees, and they at once began to bear, and bore for several years after I took the hogs out. I could see no injury caused by their rubbing the trees. I do not think they will rub the trees if the orchard is large. I do not see what injury they do. After the apples grew large enough, if wormy they fell, and the hogs ate the apples and the worms also."

EDWIN TAYLOR: "I have had a little experience in that line. I fenced around a 20-acre orchard, expecting to combine horticulture and agriculture right there. My hogs were lousy, and they did rub the trees, and whenever they rub they destroy. Anybody who tries it will find they will absolutely squeal for something to eat, when there are bushels of apples on the ground. I was at large expense to fence, but was so disappointed with the hog business that I took the fence down."

QUESTION: *Are pears of the Japan stock any better than the French?*

J. F. CECIL: "This has interested me for some time. My first experience was that the Japan stock blighted worse than the French, although growing side by side in the same rows. I think some nurserymen prefer the Japan stock because it works nicer, but as to its value in the orchard, I do not think anybody is yet prepared to speak."

A. L. BROOKE: "The Japan stock is costly and hard to procure, and must necessarily sell higher than the French. This matter of blight with the stock depends a good deal on the locality. In Texas and Tennessee Japan stocks are

a success. In the eastern valley of Tennessee you can do little with French stock, but they are eager for Japan stock."

J. F. CECIL: "My experience is, that the Kieffer pear ought to be on its own roots if possible. I have some from cuttings that have stood the blight better than either of the others."

QUESTION: *What are the merits of close root and top pruning of trees planted in orchard?*

B. F. SMITH: "I have had some experience in planting pears. I trim the roots and get them into the best possible shape; then I cut away the top about one-third. The next spring, or second year, I cut back from one-third to one-half."

GEO. M. MUNGER: "I planted a number of trees in that way myself this year, and I have only this year's experience to judge by. I want to find other gentlemen with more experience. I had rather a better stand of the trees I trimmed very close, than by planting them with all the roots I could get. I took the tops entirely off and the roots almost entirely off, so that there was little more than a clump of stubs. I just made a hole in the ground and put them in. I put water on a few. The new growth was about three feet. I desire more information on this subject."

E. J. BALDWIN: "Two years ago I planted my first pears. I cut the roots to three inches, and I had such good success that I put out 400 plum, apple and cherry trees. All were dug with a tree digger, and had immense roots. My neighbors were surprised to see the roots that I cut off. They thought the more roots the better the tree. I cut them to about three inches."

WM. CUTTER: "When it comes to a peach tree, it has got be pruned, to make a decent tree of it. I cut every peach tree down to two and a half feet, and don't leave a limb. I believe this would not answer on large trees."

DR. G. BOHRER: "I am satisfied that if you plant trees with heavy tops, and no roots, you might as well plant a dead sunflower stalk. If the roots are mangled, you should cut them off."

Upon motion, the meeting adjourned until 7:30 P. M.

EVENING SESSION.

7:30 P. M.

The Society was called to order by President Wellhouse, who introduced Hon. C. A. Fellows, mayor of Topeka, who gave an address of welcome.

MAYOR C. A. FELLOWS'S ADDRESS.

Mr. President, Ladies and Gentlemen of the Kansas State Horticultural Society:

It is unnecessary for me to assure you of your welcome to Topeka. The people of the capital city of Kansas are always happy to have the members of this Society as their guests. To estimate what horticulture has done for Kansas, and to tell you what good this Society has done for these horticulturists, is far beyond my capacity. The men and women of Kansas who have succeeded in making strawberries grow upon lands which formerly produced only buffalo-grass are certainly benefactors of mankind. Those who have planted and successfully grown our many splendid bearing orchards of apples, peaches, pears, plums and other fruit have not only added wealth to the taxable valuation of Kansas, but happiness and comfort to the people of the entire state. I am by no means an expert horticulturist, but I believe I know enough about this most delightful occupation to be able to say that no society or organization of any kind or char-

acter, within the domain of the state, has been of more practical benefit to the people of Kansas than the one represented in this gathering here. A generation ago the plains of Kansas produced prodigious crops of wild Indians, hungry coyotes, hideous rattlesnakes, fleet-footed jack-rabbits and cunning prairie-dogs, and then, for an occasional spectacular entertainment, gave the above-named inhabitants a general hair-raising prairie fire—a spectacle which must be seen to be appreciated. On the very camping grounds of the above-named menagerie you have caused to grow as luscious fruit as the world produces. Horticulture is certainly the advance agent of civilization, and the most delightful crank on the face of the globe is the man or woman devoted to horticulture. Again assuring you of Topeka's most hearty welcome, I give place to those better informed on this subject.

This was responded to by Hon. J. W. Robison, vice-president.

Music by the orchestra.

The president introduced Mr. Asa Chandler, of Argentine, as the man who "made his fortune on 40 acres of land." Mr. Chandler read the following paper:

A PRACTICAL FRUIT FARM.

It is with some degree of doubt and a feeling of diffidence that I approach this subject, knowing full well that there is a difference of opinion as to what is practical. I will endeavor to give this Society a short account of what myself and family have done at fruit-growing within the past 10 years. It was in the spring of 1886 that we undertook the task of subduing a wilderness of 40 acres, near Argentine, Kan. The outlook was unpromising, and "a forlorn hope" were the words that were passed from lip to lip among the wiser (?) ones of our vicinity. My pocketbook was not "flush," but our hearts were full of hope and expectation. We began clearing, burning, and plowing—oh, such plowing—requiring a great deal of patience and no small amount of muscle. A limited amount of planting was done the first year. At this time we formed the acquaintance of a group of men known as the "Missouri Valley Horticultural Society." This was very fortunate, as it was 20 years ahead of us in point of experience. The knowledge gained in a great variety of detail pertaining to fruit-growing was invaluable. Then we began studying fruit manuals and catalogues. Some insight into the business and of what was before us now dawned upon our heretofore clouded vision.

Right here the "Missouri Valley" came to our rescue, else our bark would have gone to destruction. By its teaching and our own experience we discovered that, taken as a whole, 90 per cent. of the varieties of the fruit catalogued were worthless from a commercial standpoint. To sift from this mass and select varieties that would be profitable is and was no small task. Some will wreck their business by unsuitable selection, whereupon they will blame the nurseryman and abuse the tree agent; 9 out of 10 times the fault is our own; we have not our business well in hand.

But to return to the fruit farm, each year a portion of the land was subsoiled and planted to different kinds of fruit. In plating the land, the different fruits were allotted as follows: Two acres to strawberries, nine acres to black raspberries, one acre to red raspberries, seven acres to blackberries, six acres to grapes, two acres to plums, four acres to pears, and ten acres to peaches. The land planted to raspberries was also planted with 500 cherries; room was also found for 500 apple trees which are now promising and thrifty. The preparation of the soil and methods of culture must be omitted for the present. Those who have tried only know the requisite amount of labor for the fruit here named. Fifteen

months after our first planting we were permitted by a gracious God to enjoy the labor of our hands to a limited extent, we had waited patiently and with much expectancy. One bright June morning I, with a two-wheeled cart, explored the route to the Kansas City market with only 13 one-quart boxes of berries, but very precious.

It is needless to tell the fruit-grower how rapidly from this time forward plants and trees and fruit grew and multiplied—from a tiny plant to thrifty vines, from a little twig to a majestic tree. Nature's transition from bud to blossom and from blossom to fruit is only five short weeks. Nature has rewarded our efforts with beauty and fragrance and the rich aroma of choice fruits. Since the epoch of our first 13 boxes I have assisted and witnessed the transformation of a hazel-brush thicket to a fine Elberta peach orchard. The fruit of some of the trees in said orchard was not surpassed for beauty and excellence by any fruit coming under my observation. From 13 boxes to start with the business has grown to 10 and 90 crates per day.

We have been confronted with the problem of who would gather the fruit and who would buy it. I have in my school days been puzzled with quadratic equations and geometric figures; but the problem of a berry field with 20 or 30 pickers requires much skill and much study; in short, you must give them your constant oversight and unremitting attention. The tricks of the dishonest berry picker are numberless, and furnish us a sad commentary on the depravity of the human heart.

Now, as to a market for fruit, this you may depend on: that you will always have a good market for a first-class article of fruit neatly and honestly put up. Nowhere does honesty count for more. Your customer will soon forget an indifferent article of fruit but he or she will not soon forget a dishonest transaction. Prices in Kansas City markets the past season were low on some kinds of fruit, but generally paid cost of production. The blackberry market was a little overdone, but I saw the Lawton and Kittatinny readily taken at \$2 while inferior grades were unsalable.

Now to recapitulate and name varieties of fruit that have been most remunerative: First of strawberries we name the Lovett, Warfield, Bubach, and Windsor Chief, with Robinson as a pollinator. In black raspberries we name the Progress, Hopkins, Mammoth Cluster, Gregg, and Kansas. In red raspberries the Thwack is sure and profitable. In blackberries we name the Early Harvest, Snyder, and Taylor. In cherries the Early Richmond, Mortmorency, Osheim, and English Morello. In plums the Wild Goose is a leader, and the Abundance and Burbank are candidates for favorable recognition. In peaches we have the following: Family Favorite, Old Mixon Cling, Elberta, Smock, and Salway. We had 12 Crosbys this year, a bright yellow peach, a very small pit, very promising. We had 17 varieties of grapes, only three of which have paid their way, namely, Moore's Early, Worden, and Concord. With pears we have had a limited experience; Rutter, Kieffer, and dwarf Duchess d' Angouleme are well-known varieties. The commercial value of the pear is doubted by some. A few well-known varieties of apples were planted five years ago, namely, Jonathan, Missouri Pippin, Gano, Willow Twig, Winesap, and York Imperial. To this list I would like to add the Golden Russet and the Newton Pippin; both varieties are out of date and unproductive. Memory recalls to mind our childhood experience of taking apples to school of these two varieties, the number of which was only limited by the size and number of our pockets.

Now a word to the prospective fruit-grower. You have no idea what you can do until you thoroughly try it. If you cannot buy ten acres of ground buy one

acre; there are manifold possibilities to study in the soil that God has given us. Experiment; toil on.

"Ask of Mother Earth why oaks were made taller and stronger than the weeds they shade." Watch varieties closely. "Whatsoever ye sow, that shall ye also reap," is literally true in fruit-growing. In closing I quote a stanza from Longfellow:

"Let us then be up and doing, with a heart for any fate;
Still achieving, still pursuing: learn to labor and to wait."

W. D. Cellar, of Edwardsville, next read the following paper:

CO-OPERATIVE MARKETING.

The advantage of united effort is no hypothesis but a patent fact. This it is that chiefly marks the difference between civilization and savagery. Cities, railroads, canals, and all the mighty works of man, were accomplished, not by individual, but by united efforts. We Kansans are in the habit of railing at corporations, as though they were an unmixed evil. Let me not be understood as commending the evil practices of corporations when I say that they have done more to advance civilization than all other forces combined.

Agriculture has been slower than any other business to appreciate the advantage of coöperation. The reason why farmers are not the most prosperous, instead of the least prosperous, people in the world, is because they lack the genius of organization that is possessed by bankers, manufacturers, merchants, and other leading business classes. A syndicate of farmers (always supposing that farmers were capable of forming and managing syndicates) might control the output of grain, fruit, live stock, or other farm products, just as a syndicate of miners control the output of coal. The syndicate, however, is an oligarchy and not a democracy; and while the invasion of the farmers' fruit by the trust might give a tremendous impetus to agriculture, it would no doubt result in squeezing out the small farmer, and so would benefit a class and not the mass of farmers. Moreover, many products, such as vegetables, berries, etc., on account of their perishable nature, could not well be handled by great corporations.

Therefore, if association is to be of advantage to the small farmers, it must be the union of growers in single communities. If such a union could be successfully accomplished it would give many advantages to the grower. One man might handle the produce of the whole neighborhood, and thus save a great deal of valuable time that is spent in going to market. Sales might be made to better advantage, as the manager would have a larger stock to draw from, and could fill orders more promptly, could take larger orders, and in some localities might control the market to some extent. He could get better transportation rates from railroads and express companies. He could buy the needed supplies for the growers, such as boxes, bags, baskets, barrels, or crates, to better advantage than each grower could buy them separately.

But notwithstanding the advantages that come from united effort the history of such organizations in the past has not been very encouraging. The Grange in its inception was a coöperative business institution. As such it was a dismal failure, and to-day, where it is maintained at all, it is simply a farmers' institute. The Farmers' Alliance and the Farmers' Mutual Benefit Association have had a like history. A few years ago some farmers of northern Illinois formed a sort of coöperative commission company to handle their produce in Chicago. It lasted only part way through one season. The fruit-growers of California tried coöperative marketing, but their associations have proved failures. A few years ago associ-

ations of Kaw Valley potato growers sprang up and grew for awhile like Jonah's gourd. They too have gone the way of all the earth. All over the country coöperative creameries, coöperative canners, fruit-growers' associations, market-gardeners' associations are being born to-day, only to go out of existence to-morrow without the formality of a decent burial. And yet so alluring are the prospects of coöperation that as fast as one society dies another is born to take its place.

Now, it seems that anything so desirable ought to be blessed with a large measure of success. What is it that farmers seem to lack that seems to render them incapable of coöperation? Some one has said that a farmer should be a worker, a manager, and a business man. A worker he is; there is no gainsaying that. So far as the details of farming work are concerned, most farmers are good managers; but comparatively few farmers are good business men. In the first place, their training in the country schools gives them no hint of business methods. The study of the three R's, with grammar, geography and history thrown in, may make them great statesmen; judging from the number of political issues that have been born in agricultural Kansas in the last few years, I should say it certainly does. But the introduction of the study of business methods, a thing which the farmer deplorably and surely needs, would be of vastly more consequence to the farmers themselves, at least, if not to the world at large.

Then again, the farmer's calling gives him small chance to acquire business training. His business does not call for an elaborate system of accounts. He is not frequently in touch with other people in a business way. It is a sign of better times, that more and more farmers' sons and daughters are going away to school, where they are thrown in contact with other people and get ideas outside the farmers' world.

Now, the successful conduct of an association for coöperative marketing requires business men; and it will be successful just to the extent that business principles are employed in its conduct. A common mistake in forming each association is to make them too cumbrous. There is no reason why a union of the farmers in a neighborhood for marketing purposes should have all the machinery of a joint-stock company. Too many cooks spoil the broth, especially if they are not good cooks. There ought to be at least one good business man in every community. Let him be chosen manager, and then, since business capacity is so scarce, let him be president, vice-president, secretary, treasurer and board of directors. Too many farmers are dishonest? They are not more dishonest than other folks; but this talk about the "honest farmer," as though he monopolized all the honesty in christendom, is all "tommy rot." I do not mean merely that dishonesty which goes to the extent of breaking the law, but that sort of bad faith which prompts a man to do anything, however dishonorable, to get the advantage of his fellows, when he can do so without breaking the law.

I was a small boy when the Grange was organized in our neighborhood in Ohio, yet I well remember the incident which sealed the fate of the middleman so far as that grange was concerned. In those days farmers used Orleans sugar, which came in large hogsheads holding several hundred pounds. The buyer for our grange purchased a hogshead of sugar. When it came, he and his immediate friends took the dry sugar on top of the barrel, and left the wet, heavy sugar in the bottom for the less-favored members.

Our association was broken up by a member secretly underselling the manager, and thus securing for himself a sale from which the whole association should have been benefited. You have all heard of packing the ends of the barrel with fine fruit and filling the middle with culls; of filling the boxes with soft or immature berries, or not filling them at all. Now, in an association where the

produce is sold in common, the honest member must help bear the loss entailed by those dishonest practices, and he will have an unusual amount of good nature or a remarkable attachment to the association if he is willing to stand that sort of a thing very long. Too many farmers are careless and slovenly in their work. Without intending to be dishonest, they pack ill-sorted and bad fruit; they nail their crates and head their barrels in such a careless fashion that many of them fall down in transportation. These evils may be reduced to some extent by requiring each grower to stamp his name on every crate, basket, or barrel, so that loss from dishonest or careless packing may be traced to the proper source.

Finally, too much selfishness is abroad; too many men are not satisfied to do as well as their neighbors, and troubles in prorating are likely to arise. The man who ships on a good market to-day will not want to share with his neighbor who ships on a bad market to-morrow. Or, the man who ships early fruit and vegetables at a high price will not want to share with the one who ships late produce at a low price. There may be some way of satisfactorily adjusting these difficulties, and a permanently successful association might be formed in spite of all the difficulties; but, as Mark Twain says, "I am harassed with doubts." If you could make the members as well as the association, you might then make an association that would be a blooming success. You would make the members all well-trained business men, so that, like the republic of ancient Greece, every member would be qualified to hold the highest office. You would make them all not only honest, but honorable; careful and painstaking in all the details of their work. You would have them unselfish; each one striving for the good of all. But, alas! we must take them as we find them, with all the limitations of poor human nature, and wait for the ideal association in that "good time coming" when all men shall be all that they ought to be. But I would not discourage coöperation. While I firmly believe that under existing conditions no business organization of the mass of farmers can be perfectly and permanently successful, yet I just as firmly believe that no honest and earnest effort is a total failure. Every attempt is an object-lesson and an educator for the community. There are more coöperative associations to-day than ever before. By all means organize associations. Do not try to do too much, do not expect too great results, and, though you may not be as successful as you could wish, you will have no occasion to curse the day your society was born.

DR. G. BOHRER: "I put out my trees and had excellent success in growing them until they were four or six inches in diameter. The fruit in quality was first-class. Had as fine Ben Davis apples as I ever saw. A tree that is from 12 to 14 inches in diameter requires a great deal more moisture than a tree four to six inches in diameter. I found that the larger trees did not have first-quality fruit and were invaded with insects. They did not seem to get the necessary amount of moisture, and some man made a remark like this: 'If you want a first-class fruit-tree you should give it as much water as you give your cow.' I began to find the trees unhealthy. The extremities began to show signs of decay, and when the hot winds came, and little rainfall, it put them in bad shape. I mentioned this at the annual meeting in Abilene in 1877. I asked one member if he had tried pumping water to give moisture to the trees. He said yes, but it did not act right. It has always been my opinion that the cultivation of fruit in central and western Kansas would be practically a failure, if it were not irrigated. Believing this, I put in an irrigation plant. Where I live, between the Arkansas and Cow creek, I struck water at 37 feet,

and went down to the depth of 10 $\frac{1}{2}$ feet. Kansas City parties, who had large pumps and mills, said they would guarantee successfully a six-inch pump. I put it in, and it was successful. A pipe six inches in diameter holds a good deal of water. I had trouble with sand coming through; it cut the leather and the pump packed with sand. It seemed as if all I had invested was lost. The question was, how to shut out the sand. I curbed the well. I made my curb of 2x4 scantling, turning the edge to the center. To make the curb strong I bound it with wagon tire. It is well worth the money invested. At the lower end I put a broad band of iron, allowing it to extend two or three inches below the bottom of the curb. Between the earth and the outside of the curb I filled in with broken stones. That shut out the sand successfully.

"One man who had carp said he lined the bottom of his pond with rock. The carp began to 'root,' and threw the rocks in every conceivable shape. Do not put in carp unless your pond is properly fixed for them. I would as soon have a pig as a carp, they 'root' equal to them. To puddle the ground for a pond, wet it all over and turn in horses to tramp it down. I had eight boys with horses working on mine. I have been pumping water into my pond for a year, off and on, and it holds water now. I doubt whether machinery, expensive as it is, can be afforded to raise water 50 feet or more. There is a man here from Greeley county who says that he has a pump that will lift 100 feet. I raised 400 or 500 bushels of sugar-beets. You can grow no more profitable food on your farm than sugar-beets. On a high prairie we cannot expect to irrigate more than 10 or 15 acres from one well. In Dodge City centrifugal pumps are used. When I went to Rice county raising celery was not thought of. I raised fine celery. I could grow many thousand with an ordinary pump. The cultivation of Irish potatoes by this irrigation is very successful. I made furrows before I planted my potatoes, and when the potatoes were six inches high I filled them with water. I had potatoes in the hill like pigs in a bed. I subsoiled the land. It is necessary to subsoil in some parts of the state to be successful. I used a Perine plow, and subsoiled three acres. If you do not irrigate do not subsoil. You must not run the water straight down a hillside; you must run it zigzag."

T. A. STANLEY: "What is the size of the well on your place?"

DR. G. BOHRER: "The curb is about 2 feet and 10 inches and the well six feet in diameter. I use a centrifugal pump."

T. A. STANLEY: "You say you found nothing but sand in your well?"

DR. G. BOHRER: "Nothing but sand. When the curb is fixed right the sand will not bother you."

HON. EDWIN TAYLOR, secretary, reported as follows: "I have no report to make further than that I made a year ago. I found myself in the embarrassing situation of having been elected secretary without my knowledge or consent, but happily I found a clause in the constitution which enabled me to appoint a deputy. I could find no one better than Mr. William H. Barnes, and I compliment myself and you. In my estimation, he has inspired the Society with new life. I look for it to progress in a new career of usefulness."

Mr. Barnes made a report on his work, and expressed the hope of being able to do much more for the Society in the future.

REPORT OF ACTING SECRETARY WILLIAM H. BARNES.

In making this my second report I do it with considerable satisfaction. I feel that the work of the year has been progressive, always forward. Immediately after the annual meeting of 1895 the labor of compiling the biennial report

was begun. The success of the annual meeting of 1895, at Lawrence, was very gratifying; every paper promised was on hand and presented at exactly the time fixed for it on the programme. These 19 papers, each valuable in itself, were turned over to me. The writers had composed them carefully, and they contained many beautiful, instructive and original ideas. Our stenographer, Miss Minnie Davis, worked faithfully, and finally sent to the office 188 typewritten sheets. The ex-secretary sent to the office the proceedings of the twenty-eighth annual meeting in manuscript, marked and fully numbered to 100 pages; I was in a quandary; the Kansas state legislators enacted that 100 pages was enough for the biennial horticultural report, and with all the above, the report to be put upon 100 pages would require pages of newspaper size. The ex-secretary was entitled to one-half, and he had sent, carefully prepared and numbered, the material for 100 pages exactly. This I reduced to the very verge of courtesy, then condensed and clipped the 188 pages of typewritten discussion, and then begged the authorities for more space.

When the book was half printed, the printer said I must reduce it by 30 pages yet. I would then have cut out the eight preliminary pages, but they were printed; so I had to take out several papers. Parties interested in these papers have been severe in their strictures. But I want the blame properly placed; I was innocent of any intent to offend or wrong any one. You can't put a hogshead of molasses—no matter how delicious it may be—into a gallon jug; and it would require finer type than now exists to print the whole Bible on a thumb nail. I had to choose on the last fourth of the book which to leave out. I could have neglected it, and the printer would have quit setting type when he got 100 pages. Next, the printing committee said the book was so small that paper covers were good enough; but I gained that point. Let me show you now the reports of Iowa, annual, 500 pages; Illinois, annual, 486 pages; Michigan, annual, 488 pages; Minnesota, annual, 505 pages; Missouri, annual, 431 pages—not a biennial among them; and great Kansas, with medals of gold, silver, and bronze, and diplomas galore, taken for fruit, over exhibits by other and older states, issues a paltry 100 pages for two years; and people call it an "almanac," and the blame is placed upon the compiler.

The edition being only 2,500, it was necessary to be careful in distributing them, and yet they are practically exhausted.

After receiving and distributing the reports I began working to organize local horticultural societies. I organized societies at Garnett, Eskridge, Oskaloosa, Howard, Marion, Troy, Sabetha, Hiawatha, and Junction City, and by my effort societies were organized at Holton and Cottonwood Falls, and there are now two ready to organize this month, and others soon to follow. I have traveled in the state for horticulture, since our last meeting, 4,512 miles; total since July 1, 1895, when I came here, 6,744 miles. Up to going to press have added to the above list Beloit, Medicine Lodge, Independence, Burlington, and Yates Center. Besides organizing the above-mentioned societies, the president and myself attended the summer meetings at Iola on June 10 and 11, and Oswego on August 15. I also since last annual have visited county societies eight times, attended seven county fairs and the irrigation congress. Have been at the desk and at work every day during office hours, when in the city, having taken no vacation.

On May 27 the office was removed from a corner in the labor commissioner's office to three newly finished rooms in the north wing of the state-house. The state carpeted them and put up some shelves, and furnished a bookcase and a few other articles. We sent to Lawrence and obtained the desk, bookcase, press

and stand belonging to the Society and used by the ex-secretary. We have cleaned and hung up the five diplomas received at an early date from the American Institute, of New York city, and framed and hung one Centennial and two World's Fair diplomas; also framed and hung 40 cuts of "Kansas at the World's Fair."

We have also received a large framed crayon of the late William Tanner, of Leavenworth, organizer and president for the first four years; the late Dr. William M. Howsley, of Leavenworth, president for second four years; Judge L. Houk, of Hutchison, the fifth president; Judge F. Wellhouse, of Topeka, the president; Maj. F. Holsinger, of Rosedale, treasurer; Hon. Martin Allen, of Hays City, vice-president for eight years; Dr. Chas. Williamson, of Washington, trustee for 10 years, and Calvin H. Graham, of Le Roy, trustee for two years.

We have received two bronze medals from the World's Fair commission: one for display of 82 varieties of grapes, the other for display of 73 varieties of apples, besides pears and peaches.

The rooms of the Society are handy, pleasant, convenient, and comfortable, but will soon be found too small. We need room for a perennial exhibit of fresh and preserved fruits, cabinets of insects, models of tools, implements and fixtures useful or necessary in horticulture. We need office help; we need a book fund, to keep up with the times, and more liberal appropriations for traveling expenses.

We have now 23 county societies, and one to organize on December 19 and one on December 22, comprising in all about 1,200 members. We should have 200 societies, each an auxiliary of the state society, and they should work in harmony with this society. Monthly reports should be received from each, and a monthly letter sent to each.

We are under obligations to the railroads, else I could not have traveled so much and so far on \$158.30. Our work is as greatly to their interests as if we were employed by them. When we consider the largeness of this work, instead of being one of the minor interests or "small industries," there are none in the state more needful or more worthy. If the people of this state use only an average of one cent's worth each of horticultural products on their tables at each meal, and add to this the actual sales accounted for, we find the value of horticultural productions equals more than all the wheat, rye, oats, barley, buckwheat, castor-beans, flax, hemp, broom-corn, millet, hungarian, milo maize and Jerusalem corn raised in the state in 1895, and that it will grow on one twenty-fifth the number of acres. Besides, our orchards, hedges, trees, etc., add a permanent value to the state, which cannot be said of one of the above. And as for horticulture being called a "small industry," and rated with poultry and eggs, by the above estimate its value in 1895 was $2\frac{1}{2}$ times the value of all the poultry, eggs, butter, milk, cheese, honey, wax, wool and wood sold in the state. A small industry indeed!

It is the province of the Horticultural Society to double this in quantity by instructing and encouraging more planting, and to quadruple it in value by improving the quality of all. Improved methods of drying, canning and preserving have arisen, and the wonderful science of cold storage promises our fruit-growers new and larger profits and the public a better article at a time of the year when most valued. Many of our husbandmen are living on farms little adapted to general farming, but literal mines of wealth if properly planted to fruit. The labors of this Society are largely taken advantage of by a class of nurserymen, living in most cases out of the state, whose methods and promises are — to say the least — open to suspicion; and I would beg the Kansas horticulturist or would-be planter

to exhaust all the home nurseries before going over the border. Our state has enacted laws for your protection; but when you go abroad and get cheated you do not deserve even the sympathy of the state, let alone its protection. You cannot improve on the character of Kansas nursery stock by patronizing foreign nurseries, and you impoverish yourself and the state by so doing. It is our hope to organize a great many local horticultural societies in the next few months, and to get them all working harmoniously and in touch with each other and with the State Society.

The meetings held at Iola and Oswego were well attended and interesting, and we believe did much good.

California is known far and wide for her fruits. The reason is plain. California makes her fruit interests her leading interest. She legislates for it; she works for it; she publishes it to the world. Kansas considers her fruit interests as among the "small industries." No one knows the greatness of our horticultural interests as well as this Society does. We are trying to educate the people up to a better understanding of these important matters. Our state should glory in her horticulture. We grow more peaches than California; we are next to her on cherries. Our southern tier of counties can grow California grapes, by a slight winter covering, and a few days since I heard a gentleman who long lived in California say he would prefer an apple orchard in eastern Kansas to one of the famous California fruit ranches. We need legislation that will encourage our horticultural interests, laws to protect our growers from tree sharks and fruit thieves, premiums for originating new varieties, and penalties for keeping insect, vermin and pest-breeding harbors. The grower of a row of shade-trees along the highway should have a tax rebate. The grower of an artificial grove should have a tax rebate. These are permanent improvements, adding to the real value of the state. We look forward to a better recognition on the part of our legislators and more encouragement from all true Kansans.

EUGENE TILLEUX: "I have little to say regarding my well. It is a 6-inch hole curbed with an ordinary galvanized-iron $2\frac{1}{2}$ -inch cylinder, and 8-foot mill. At first it was all I could do to irrigate one-eighth of an acre. I made preparations for gardening, and marketed in our town near by \$90 worth of vegetables. I did not raise potatoes. I had peas, beans, celery, beets, tomatoes, and cabbage."

DOCTOR BOHRER: "What did your plant cost you when complete?"

EUGENE TILLEUX: "About \$125. It paid for itself in one season."

GEO. M. MUNGER: "Irrigation is a broad subject, and it is difficult to know where to begin and where to leave off. In speaking on irrigation, I desire to give information that will be useful to you. The prime quality of irrigation is that it furnishes food for growing plants. In the absence of moisture, growth ceases and decay sets in. Moisture is the necessary vehicle for conveying food to plants. We have an abundance of water in Kansas for irrigation in such portions of the state as can be profitably irrigated. Irrigation means high cultivation. It leads to the production of nearly everything we consume at home. If irrigation will accomplish this for Kansas, it will do one of the most desirable things ever done. I say we have an abundance of water in Kansas for irrigation purposes. The whole of Kansas does not need irrigating. I think it is a very modest proposition to say that with high cultivation Kansas can support in comfort and luxury its present population. We are interested in irrigation as an aid to fruit-growing. Irrigated fruit will be recognized as better than non-irrigated. Our rainfall was 34 inches. I have been studying the problem of how much water it takes to grow

an apple tree, and it is safe to say that it takes a "whole lot." You want to give the tree as much water as you would give a cow, for it drinks an awful quantity. You may pump the ground wet with water, and you will find it dry and thirsty for moisture in less than a week. A tree is entirely different from a steer. The steer will lie down, chew his cud, and rest. A tree feeds continually. There is much in this subject of irrigation. I would like to hear others speak on this subject."

Following paper was read by Secretary Barnes:

TREE-GROWING IN WESTERN KANSAS.

By S. T. Kelsey, Kawana, N. C.

It is now over 30 years since I went to Kansas filled with the idea of growing trees on the western plains; I fully believe that with a better knowledge of the condition and appliance of available resources, trees could be successfully grown for fruit, ornament, shade, shelter, fuel, etc. The first railroads were just then being built across the plains, each one with an extensive land grant, and anxious to sell the land to actual settlers to aid in the construction of the road and furnish business afterwards.

With the important interests of these railroads, the national and state interests, land companies and settlers, in the treeless plains, half as large as the then settled portion of the United States, and almost worthless for settlement without trees, it did seem at least reasonable that ample provision should be made for testing the practicability of tree-growing, and varieties and management to insure best results. But government officials and representatives of the large land interests could not be induced to give the matter serious consideration. Some said trees would succeed anywhere — anybody could grow them, while others claimed they would not grow anywhere on the treeless plains, and nobody could grow them. Like the widow's cow, "If she lives she lives, you may depend upon 't; if she dies she dies, and that's the end on 't."

So they saw no necessity of expending money in experimental work, and no comprehensive system of experiments was ever undertaken to find out just what could be done. The government, by the very unwise and impracticable "timber-culture" act, tempted thousands of people of small means to spend their all where — with lack of knowledge of conditions necessary to success — their expenditures of time, labor and money could not possibly bring any adequate returns.

In most of our undertakings we try to find out the difficulties and learn how to overcome them. In this, the country has refused to see the difficulties, and sent an army of brave pioneers to the front, unprepared to meet and overcome obstacles that they were assured did not exist. The results, as I believe most people who have observed are now willing to admit, have been unsatisfactory, and the policy injudicious and short-sighted; and I am writing now only to urge upon you as, in a sense, representatives of the state, and through you upon all who may be interested in the matter, the importance of a change of policy, and the adoption of such a thorough and comprehensive system of experimental work for western Kansas, and the treeless plains generally, as shall demonstrate as early and as conclusively as possible what cannot be done, and how it cannot, as well as what can be done and how to do it. If only to prevent in some measure the great sacrifice of time, labor and money and the sore disappointment from trying to grow trees in ignorance or — I was about to say — in defiance of adverse conditions that no theories can set aside, and that only a knowledge and appliance of proper requirements can overcome.

I wish to add by way of encouragement, that I still have faith in the ultimate success of tree-growing in western Kansas. I do not believe it is to remain a bare, wind-swept prairie, to be utilized only as a stock ranch. The soil for the most part is very rich in all the necessary elements of fertility, and with a proper supply of moisture its productiveness compares favorably with any section of the country. And whenever there is a sufficient amount of moisture to feed and keep them from drying out, trees make a good, strong, healthy growth, and most varieties stand the extremes of heat and cold of western Kansas as well as in the prairie sections farther east; at least, that was my experience when there.

Perhaps one of the greatest causes of ultimate loss and disappointment has been due to temporary success. There are favorable seasons when transplants, cuttings and seeds start well and make a good growth. They may continue to grow well for several years; but the dry times come, when there is not sufficient moisture in the soil to keep the trees growing during the summer; or, still worse, the roots are frozen dry in winter, and the next season they are found to be dead or so enfeebled as to be worthless for future growth or usefulness. Trees that will, with their roots in moist earth, stand 40 to 50 degrees below zero, with the ground frozen solid about the roots for several months, may be frozen to death in dry soil with comparatively mild weather and little freezing of the roots.

There are many lessons to be learned as to the varieties best suited to soil and climate and to the various uses for which trees are grown, but, first of all, I think we should learn to provide, wherever and whenever it may be necessary, a sufficient amount of water to sustain life and a healthy growth and condition at all times. The farmer who can plant his grain with reasonable assurance of harvesting two good crops out of three may afford to take the risk, but no one can plant trees with the probability of their being killed once in three, four or five years.

I would therefore urge upon all who would plant trees in western Kansas, or any semi-arid district of the West, to provide for giving them a supply of water to carry them through any dry times that may come; and to that end, as well as for general purposes of irrigation, every available source of supply should be sought and the best means for utilizing ascertained.

REPORT ON NEW FRUITS AND NOMENCLATURE.

By the Secretary.

Of new fruits, I find that "persistent" seedling peaches are gaining ground; many of various qualities and characteristics were exhibited at county fairs.

A new apricot originating with Mr. A. T. Remer, of Marion county, was examined and tested by me. It equals in size and beauty any California or other apricot I ever saw. Its quality was excellent. Another which is smaller was very sweet, and entirely free from a trace of acid.

As a novelty, I would say Mr. E. T. Daniels, of Barber county, has succeeded with California raisin grapes, by applying a winter covering of four to six inches of earth, first trimming closely.

Complaints still arrive regarding unreliable nurserymen and stock. My advice always is, exhaust your home and state nurseries before buying abroad.

Reports from Mammoth Black Twig apple, spoken of a year ago, show that it is being largely called for and planted. As to actual fruiting, I have no report; perhaps some one present has. I have heard that it drops badly.

On June 29, 1897, I examined the Cardinal raspberry at the home of A. H. Griesa, the originator. He also originated the Kansas raspberry. The Cardinal

is a large, luscious berry, of the red type. In color it is a dull purple or maroon, enormously prolific, very hardy; has never winter-killed. I believe it would ship well, as it is very firm; flavor delicious as any of its class.

SECOND DAY.

THURSDAY, December 10, 1896—9 o'clock.

The Society was called to order by President Wellhouse.

Prayer by Chaplain Burge.

Communication read from Missouri State Horticultural Society.

REPORTS OF STANDING COMMITTEES.

Committee on Small Fruits, A. Chandler, Wyandotte county, chairman: "Strawberry blooms were profuse, but the fruit did not set well. Some varieties were a failure, others a half crop. What caused this we have not been able to determine; I would like information from others on this subject. Our peaches were best where protected from the southwest winds; where exposed, there was scarcely any fruit. The old Snyder blackberry was clear of rust. We have, as yet, found no remedy for rust."

FRANK HOLSINGER: "What varieties were injured by rust?"

A. CHANDLER: "The Ohmer and the Ancient Britain."

FRANK HOLSINGER: "I am trying the Erie and Kittatinny. The Kittatinny will outsell the Snyder two to one; they are very large and slightly. It will certainly be a remarkable berry if we can prevent the rust. Have never seen any rust on the Snyder."

T. W. HARRISON: "What is the matter with the currant? Why are we not more successful with it? They are in good demand and sell for a high price."

F. HOLSINGER: "Dry climate is the trouble. The air is too dry and hot. Currants grow best in the North, where there is more moisture in the atmosphere. We may be successful in raising currants on the shady side of a stone wall."

E. B. COWGILL: "I planted a small patch of currants on the north side of a row of big apple trees, mulched the ground, and kept it almost too wet to walk upon. They did as well as in Ohio and Iowa. I think it simply a question of water and protection from hot winds."

DR. J. STAYMAN: "You can grow them on the north side of a stone wall, by mulching them. The heaviest crop raised in our county was under about a foot of mulch. They must have moisture and protection. This year mine were killed by frost, but where not killed there is as little difficulty in raising currants as other small fruit. Gooseberries are much the same. One gentleman spoke of his strawberries not bearing. I have no difficulty with mine. I have some varieties growing on my place below the hill, and I have some on the top of the hill. Those on the hill bore well; those below did not. Those on the top of the hill were not frozen; those below were. We have had a heavy crop on top of the hill for more than five or six years past."

T. A. STANLEY: "Two years ago I received some currant cuttings from Massachusetts. I set them in my garden on the north side of a picket fence. The first year they grew well; last year I got an extra growth, with lots of berries. The picket fence seemed to shelter them enough from the sun, and the bushes grew well. I think if I had mulched them they would have grown still better."

J. W. WILLIAMS, Holton: "I started to raise currants about the year 1860;

some of the early settlers said currants could not be raised here unless protected by a wall or fence. I planted them on the north side of a paling fence. I have had good success in raising currants ever since I began, although last summer I came near a failure."

E. P. DIEHL: "I have been marketing currants for about fifteen years. I have had but one failure in the last ten years, and have never used a wall or fence of any kind to protect them. I have one patch with no protection whatever, and I always have good crops."

F. HOLSINGER: "Most of our currants are protected. Some of them are in the open sun. Those in the sun did as well as those in the shade."

B. F. SMITH: "I have been growing strawberries for 30 years, and I learn something each year. Last spring I learned it would not always do to make preparations for a big crop of berries on the strength of a fine show of blossoms. We had as fine a show of blossoms as I ever saw, and we prepared for 2,500 crates, and got only one-third of that. What the trouble was I cannot tell. The wind blew hard for about eight days when the fruit was forming, and I attributed our failure to that. Our best varieties were Captain Jack, Crescent, and Warfield. Best new variety was Bisel. The best raspberry was the Kansas; the most productive, the Progress; the Egypt is also good."

F. HOLSINGER: "How does the Progress compare in size with the Kansas?"

B. F. SMITH: "Not so large. At first it is large, but by the end of the season it is rather small. We commence picking it about four days before the Kansas is ripe."

SAMUEL REYNOLDS: "I would like to ask Smith about the Robison strawberry. Do you class it among the old varieties?"

B. F. SMITH: "I have nearly 100 varieties. The Robison is not as large as the Bubach or Gandy, but immensely productive. I would not recommend it for sandy soil. It did the best for me on the south side of the river, and is the very latest strawberry. The last dish we gathered was the Robison. The Gandy the past year did very well. For an early strawberry I would recommend the Bederwood. They are a tender berry, and would not carry as far west as Denver. As to blackberries last year, Snyder and Early Harvest did the best; Taylor was a failure."

F. HOLSINGER: "The best raspberry to carry in shipping is the old Doolittle. I think the Kansas the greatest berry ever produced. The Gregg made its propagator famous and wealthy. A new berry closely related to the old Hopkins will be introduced by Mr. Hiatt. It promises to be a second Kansas. We are enthusiasts in currant growing, and have had fair success. I never saw them in better condition than at present. We have them at several elevations. They are shaded a little. We have them in the cherry orchard. The cherry trees are beginning to shape out and shade them. The currant should be better known. A neighbor sent away this fall and purchased the North Star and a half dozen other varieties with which I am not yet familiar. As for the blackberries, I do not believe there is any difference between the Ohmer and Ancient Britain."

B. F. SMITH: "We get blackberries picked at 1 cent per quart. When prices are low we get about \$1.25 per crate. I paid 1½ cents per quart for picking raspberries, and 1 cent for picking blackberries, during last two seasons, and 1 cent per quart is a good price for picking strawberries, when prices are low. In the matter of keeping account of the quantity of berries, I have always used tickets for the quarts. Boys used to get tickets, and go off to some shady place and gamble, throwing craps and dice. So I tried the

tally system. I afterwards found that all our hardware stores kept ticket punches such as I used. The boys would go to the hardware man and buy a punch, and I had to pay them \$50 more than they earned. I went back to the old ticket system; we broke up the gambling, and made strict rules which they dare not break."

F. W. DIXON: "This year I had about a three-fourths crop of strawberries. The Stayman was the only variety that gave me any kind of a crop. I sell so many plants of the old Bubach every year that many of them do not bear. The Warfield is one of my best. The Splendid is no good with me. I am favorably impressed with the Marshall. It is a thrifty grower. It does not make plants rapidly. I have tried many varieties, and find only about one in 100 of any value. I think many nurserymen force varieties on the market just to sell them. In keeping tally with berry pickers, I have used a ticket punch and card. We get our neighbors' children—those that live in the country who have not got onto the tricks of city pickers. I never use over 50 or 60 pickers at a time. I have used tickets, but it is too slow. As to raspberries, the Kansas is about the only one that does well with me. The Progress is a good berry. The old Gregg appears to be running out. For an early berry I believe the Palmer fills the bill. I have the Queen of the West, and am favorably impressed with it. All small fruits are in better shape than I have known them to be since I began the business. Plants are larger than usual."

W. D. CELLAR: "I hire girls. I have no boys on my place. As long as the girl crop holds out, I will use them. Some of us would like to hear of experience with quinces."

DR. J. STAYMAN: "I brought to this state 40 varieties of strawberries. No one can determine the value of small fruit by growing it one year. It takes several years to test the value of strawberries. The Crescent succeeds nearly everywhere west. Varieties that succeed in east Tennessee do not always succeed here. I buy from there every year, to test. I have tried this so long, I am satisfied we can succeed only with our home-tested varieties. The same with the apple, pear, and other fruits. The Crescent is too small, but will succeed with all. We want a larger strawberry. I have grown the Bubach by the side of others, and to the present time I have not succeeded in getting a crop of them. I have seen Bubach within two miles of my place, on ground not different from mine, loaded with berries. Captain Jack succeeds on my place."

HANDLING FRUIT.

The subject of handling fruit was now taken up.

B. F. SMITH: "We should begin with the berry pickers. We should instruct our pickers before letting them into the patch; have a superintendent or two to see that the fruit goes into the boxes in good shape for sending away. When fruit comes in we have a man there to look it over. We frequently turn boxes up to see if the fruit has been hurt in picking. [Every box should be turned.] We pack in neat, clean crates, marked to destination. There is a great deal of carelessness in the handling of fruit by the express companies. Our fruit may have 100 miles to go. It leaves us in good order, but when it gets to its market it is in bad shape, because of careless [studied recklessness] handling by the expressmen in loading into the cars. We should look after them, and endeavor to get [compel] them to handle carefully. This year we lined our picking baskets with heavy duck cloth, and it worked nicely. The pickers drop the fruit into the basket, and by having the ducking tacked in, I find it is better for the fruit. I think my fruit in cold storage has kept better on that account."

It costs about 3 cents to line a basket. The best way to pack fruit (apples, pears and quinces) is in barrels. I have tried bushel boxes, but find the barrels best in all cases. I made a mistake this year in packing my Bartletts in one-third bushel boxes, getting only 25 cents per box for them. I am satisfied I would have gotten twice as much money for them if I had packed them in barrels. The Seckel pear sells best in one-third bushel boxes. Last year we barreled them, and found it a mistake. In regard to berries, I tell our pickers that we want as big berries on the bottom as on the top."

A MEMBER: "It is all right to press apples in tightly, but I want to know if you can press pears like apples."

D. S. HAINES: "Pears will not bear pressing. We press with a barrel press, but not so tightly as we do apples."

JAMES SHARP: "I had about 100 bushels of Kieffer pears this year — my first — and did not know how to handle them. I got 500 one-third bushel boxes. I left spaces on top which would show a nice line of pears. I put 48 pears in a box. The small and inferior ones I put in eight-pound boxes. I sold every box for 50 cents. I had no trouble whatever in selling the one-third bushel boxes."

PRESIDENT WELLHOUSE: "We usually pick two rows of apples at a time, using gangs of 12 men with a foreman. We cannot use more to advantage. Each man has a common grain sack with a leather fastened to the bottom, as used in sowing grain. These picking sacks are made by taking a strong two-bushel grain sack. Sew a leather strap six inches long and four inches wide to a bottom corner of the sack. On the loose end of this strap fasten a strong metallic hook. To the upper corner on same side of sack fasten a strong metallic ring or link. Opposite this ring fasten with rivets a piece of iron six or eight inches long and about half an inch wide and one-eighth an inch thick rounded, across the sack mouth at the edge to hold the sack open. This sack is worn under the left arm, the strap going over the right shoulder and hooking in front. We use ladders from 12 to 16 feet long. The top of the ladder is made narrow so it can be put between the limbs, being just wide enough at top to set one foot on at a time. The apples are picked and put in bushel boxes on a platform on a wagon. The boxes are 16 inches wide, 24 inches long, and 8 inches deep, holding about a bushel, 16 to a wagon."

JAMES SHARP: "What sized barrel do you use?"

PRESIDENT WELLHOUSE: "Twenty-eight-inch stave, 17 $\frac{1}{8}$ inch head; and holds three bushels."

PROFESSOR MASON: "How much spread at the center?"

PRESIDENT WELLHOUSE: "I do not know just the measure."

JAMES SHARP: "Is the regular flour barrel the same kind of a barrel?"

PRESIDENT WELLHOUSE: "We have used number one flour barrels."

W. D. CELLAR: "What is the effect of selling apples in 12-peck barrels competing with 11-peck barrels?"

EDWIN TAYLOR: "I packed my first apple crop in small barrels and sent a capable man to Cincinnati with them. When he came back he said everybody objected to small barrels. Year by year more suspicion attaches to the man who uses small barrels. The large barrel (three bushels) is the best."

PRESIDENT WELLHOUSE: "We always used three-bushel barrels until 1894, when I bought barrels here (Topeka) supposing they were the same as we had been using. They proved to be 11-peck barrels. I sent them to Leavenworth, and our experience was such that we want no more 11-peck barrels. I would not have used them had I known they were 11-peck barrels. We lost greatly on them."

E. P. DIEHL; "I always use three-bushel barrels."

PRESIDENT WELLHOUSE: "We find that three bushels is all that can be safely put into one barrel."

F. HOLINGER: "What do three bushels of apples weigh?"

PRESIDENT WELLHOUSE: "One hundred and forty-four pounds. The correct way to sell apples is by the pound; but we cannot get people to practice it. The three-bushel barrel has 28-inch staves, and 17½-inch head. Some of them will bulge more than others. It is hard to get them exactly uniform. The bevel in each stave is the same; wide staves make but little bulge. You put a lot of small staves in and they make a big bulge."

JAMES SHARP: "What is the price of apple barrels?"

PRESIDENT WELLHOUSE: "Barrels cost about 26 cents each. A scattering crop on high trees will hardly pay to pick at low prices. We have had men pick on an average 75 bushels per day on full Ben Davis trees."

D. S. HAINES: "Our packing-house is on hilly land, and it is considerable trouble to haul apples to it. My packer now sorts and packs right in the orchard, using a sorting-table. This table stands say 3 feet high and 10 feet long, and 3½ feet wide, with a common six-inch board on edge on the side. The men in picking use a ladder 12 to 18 feet long. We did wrong in making our ladders; we could have bought them already made that were lighter and just the right thing. We set this sorting-table among the trees; the men fill their sacks, emptying them on this table, which is carpeted; they barrel the apples up beside this table by letting them through an opening into a barrel. An apron is so arranged as to let the apples fall on it and gently roll into the barrel without bruising. A man heads the barrels as soon as packed. In packing apples in the field we found that something solid was needed upon which to shake the barrels. The man who fills the barrels shakes them to make them more solid; then when pressed they bruise less. Our man can head about 100 barrels a day. In our rough country it is a great advantage to sort and pack in the orchard. We move this table about in the orchard. The expense to pick and pack a barrel of apples is about 20 cents."

F. HOLINGER: "When we cannot get three-bushel barrels we take 11-peck barrels. When selling our three-bushel barrels we got no more for them than for the 11-peck barrels. If I have good fruit, in good condition, I will find purchasers for it."

AFTERNOON SESSION, December 10, 1896—1:30 o'clock.

Greetings were sent to the Kansas State Grange, at Olathe.

Constitution (see front of book). *Resolved*, That this constitution and these by-laws (except article 4 of the constitution) shall take effect from and after their adoption, and that said article 4 shall take effect from and after the election of officers in 1896.

Report of committee on credentials, by Samuel Reynolds, was received.

Election of officers was now called for by the president. The rules were suspended, and the secretary was instructed to cast the ballot of this Society for the reelection of the incumbent, President Wellhouse. Result: 80 ballots for Hon. F. Wellhouse, of Topeka, for president. The secretary was instructed to cast the ballot of the Society for J. W. Robison for vice-president. Result: 80 ballots for J. W. Robison, of El Dorado, for vice-president.

William H. Barnes, the present deputy secretary, was then elected as secretary for the two years beginning July 1, 1897.

Motion was made that unanimous vote be cast for the reëlection of Major F. Holsinger for treasurer.

On instruction, the deputy secretary cast the ballot of the Society for Major Frank Holsinger for treasurer. Result: 80 votes cast for Major Frank Holsinger, of Rosedale, for two years beginning July 1, 1897.

The following trustees were then elected to serve two years: First district, E. J. Holman, Leavenworth; second district, B. F. Smith, Lawrence; third district, W. S. Coley, Oswego; fourth district, Geo. M. Munger, Eureka; fifth district, William Cutter, Junction City; sixth district, Martin Mohler, Osborne; seventh district, Geo. W. Bailey, Wellington. These districts have same lines as the congressional districts.

Major Holsinger was then voted a life membership in this Society for services rendered.

Paper by Prof. S. C. Mason, on "Experimental Horticulture and Fungus Insecticides." (Not furnished for publication.)

The following paper was read by the acting secretary:

THE HOME GARDEN.

By Miss Lou M. PANCOAST, of Iola.

The home garden may be large, or it may be small; but in either case it should receive the highest cultivation that can be given to it, for in it, to a certain extent, is formed the material out of which characters are built.

The child that is forced to grow up without proper nourishment can scarcely be the perfect man or woman that the Creator intended. Many of the ills to which we are subject may be traced to a lack of the necessary elements in our food, and it should be the aim of every man that has a family to provide for the physical well-being of those dependent on him.

In selecting a spot for the garden, be sure that it is near the house; and, if possible, have a fence all around that will turn chickens and rabbits. Have a gate for the convenience of the busy housewife, and one that will admit a team. It does not require any great amount of time or labor to maintain a profitable garden, provided it is tended with a horse, and kept clean. Half an acre of ground that is fertilized as it should be will produce more fine fruit and fresh vegetables than an average family can use, and there will always be a market for any surplus that is above the market in quality.

In choice of fruit there is room for the exhibition of individual taste, always keeping in mind the influence of soil, climate and location. I would not recommend any farmer to spend time in experimenting with novelties, tropical or foreign fruits. It will be better to let the nurserymen attend to those, and to confine himself to the perfecting the old and well-tried sorts with which we have been familiar from childhood. There will not be many farmers, wishing to establish a garden, who cannot profit by the experience of those who have already tested the merits of the soil. Neighborly gossip is very cheap, and if a man is too poor to buy a few plants to start with he can always find a generous friend who is willing to divide.

The diversity of soil and climate in our state makes it almost impossible to recommend any particular varieties in fruit. There are hundreds of varieties of strawberries, raspberries, blackberries, gooseberries, currants and grapes that are hardy and productive. All these should find room in the home garden. The Russian mulberry is somewhat neglected, but if proper care is exercised in selecting cuttings from trees that bear fruit there will be no cause for complaint. Select fruit for quality and productiveness, rather than for shipping qualities. Some of

the finest berries grown are never seen in the market, because so juicy and tender that they will not bear the careless handling of the average marketman. Such are the most prized for home use. The "wise man" says we partake to a great extent of the nature of the food we eat. If that be true, we should prefer that our friends should think us more like the fragrant strawberry or the sunny peach than the hog.

Very early vegetables never seem to grow fast enough to satisfy our impatience. Winter's diet of salt meat, corn bread, etc., ill prepares us for a hard battle with the soil, or for the long, hot days of summer. Perhaps we have "spring fever," ague or some other equally enlivening malady just when we need all our strength. Good wholesome food in sufficient variety is necessary to our health, and it is far easier and cheaper to raise it in a garden than to depend on the neighboring market. Did you ever stop and think what it would cost to buy all the fruit and vegetables that your family could use? A hotbed is a luxury on the farm, and not costly, but we can have lettuce, radishes, onions, etc., as soon as the ground is in good condition for the planting of tenderer crops. Seeds may be planted in the open ground in February, and the young plants protected from frost by a light covering of brush and leaves, or old hay. A bed of asparagus and half a dozen hills of rhubarb will add variety to the early vegetables, and when once established will require little care beyond the occasional weeding and a liberal supply of manure. I would strongly urge that a small garden, highly cultivated, will afford more pleasure and profit than a whole field managed in the common way.

We may feel very "poetical" when we contemplate nature untrained, but "she" certainly has no business in our garden, and the sooner we clean out the fence corners and cut down the burs and horse-weeds and compel every inch of ground to contribute to our support, the sooner will we have time for those social and mental pleasures which we all covet but seldom have time to enjoy, because we must raise more corn to feed more hogs, etc.

The raising of a crop of winter vegetables is usually neglected, and I do not know why, for the list of vegetables that may be kept until spring is nearly as large as that devoted to summer use. Why not have a row of parsnips and one of carrots, and a few winter radishes and beets, along with a generous supply of salsify? A vegetable-oyster stew is a delicacy unknown to the average farmer, yet there are few plants easier to raise. They are good from early fall to late in the spring, and may be left in the ground all winter without injury. These root crops are best if planted in rows and tended with a horse, as thorough cultivation is necessary, and I believe that after the young plants have grown large enough to be plainly visible across the rows they will pay for as much care as is generally given corn.

Rich garden soil is conducive to the growth of weeds, but we can keep ahead of them by never permitting them to get ahead of us. How many, many times do we see the efforts of the farmer's wife made of little avail because the farmer thinks *his* time is too valuable to waste on "truck." At the time the garden needs cultivating *he* must go to some important meeting, the object of which is to criticize the vile measures of the administration or perhaps to devise schemes for acquiring "free" capital.

The farm dooryard is not the place for hothouse flowers, and I can only say, do not waste time on them. I would recommend the planting of hardy perennials and biennials, because they do not require so much care and cultivation as do the tender annuals, and if selected with regard to time of blooming we may have an abundance of bright blossoms from early spring until frost, with but little more

labor than is needed to keep the grass green. The time devoted to the beautifying of the farm is necessarily limited; therefore let it be well spent, and in a manner that yields some return. If you are fond of tulips and roses, have some, but do not plant your rose-bush under a tree and then plant your tulips under the rose-bush. Roses *must* have sunshine and manure, and tulips to be really beautiful must be planted in a large bed that is devoted exclusively to them; there must be hundreds of them. I would have but one or two kinds of blossoms at a time, and endeavor to have them massed together, so that they could not help attracting the attention of every passer-by.

Each month of the year may furnish us a new flower to rest our tired eyes upon. Some of the old-fashioned flowers are more satisfactory than those of recent introduction, because we know their habits and they do not disappoint us; we loved them when we were children and we cannot give them up. A clean, grassy lawn, with a few choice shade-trees, climbing vines and shrubs, and flower-beds, gay with blossoms, all give evidence of refinement and taste, and will not be without influence over the minds of those who are permitted to observe them.

Along our streams and scattered over our prairies are innumerable wild flowers and vines that are quite as useful and beautiful for home adornment as any that are sold. Surely we have enough of them to cover the bare earth and give to our dwelling-place that subtle air that makes it "home."

HORTICULTURE CONNECTED WITH FARMING.

By Miss Lou M. PANCOAST, Iola.

In no country is there a dividing line between horticulture and agriculture. Go where you will, when you find a man engaged in agriculture you will find that he is a horticulturist as well. If you see a horticulturist you will see a man who is more or less an agriculturist. If your farmer is in the United States, you will see that whether wheat, corn, potatoes or cotton is his specialty he will have his apples, berries, oranges, and his flowers as well. If he has not, I will show you a man whom it is no pleasure to know. If we go to Egypt, we will see that along with his wheat, barley, tobacco, cotton, etc., the native has his date-palm, his figs, his oranges, and flowers of all descriptions. In Japan, no matter how small the farm is, the Jap. will have a persimmon tree, a plum tree or two, and other fruits, not to speak of the chrysanthemum and numerous flowers.

On the other hand, how many of us who call ourselves horticulturists are there who are not farmers as well? We plant our corn and potatoes between our berries and young fruit-trees, give our odd patches (if we have any) to sorghum or hay for feed, and some of us still sow clover in our orchards despite the protests of the cow-pea advocates. And so wherever we go we find that horticulture and agriculture are always together. We do not find the same person devoting a great deal of time to both, however, one being the specialty, the other simply accessory; the ascendancy being due to convenience to market, and the quality of the soil.

There are several reasons why the two branches should go together; one being that it is more convenient, another that it is more economical, and a third that it is more agreeable and pleasant. This reason might probably be included in the other two, but it is more the pleasure of connecting horticulture with farming that I wish to discuss than the economic features. With our own berry patch, vineyard and orchard we do not have to rely upon others for our fruit, and what we have is always nice and fresh. We do not have to use half-stale or half-green stuff and pay some other person a good-stiff price for it, and the money

we would use in buying this fruit is clear gain. We all know that when we buy fruit it does not taste as well, and again, we do not eat as much of it, as when we raise it ourselves. The cost of maintaining a plat of ground devoted to fruit is very small and the returns large. Of course I mean when the work is done intelligently.

The expense, I say, is small; it would take but a very small sum to purchase the plants and trees, but a few hours to plant them, and the time taken from the corn that would be needed for their cultivation would be well spent. The trimming can be done in the winter, and a person who is economical with his time can take care of his fruit without neglecting his other work.

The varieties of fruit that should be grown for such purposes will differ materially from those grown for market; for in this case color will not be given the prominence that it has when fruit is grown for market. It is not necessary to have such firmness, and size may even give way to quality. For instance, who would prefer Gregg or Thwack raspberries for home use when Kansas or Turner can be as easily obtained? True, the Gregg and Thwack may look better when they reach the market, but can you compare them as regards quality? Or who would prefer Ben Davis apples for home use when Winesap, Genet, Milam, and a host of others less beautiful and smaller, perhaps, but far superior in quality, can be had for the same amount of care?

The ground that would have to be devoted to this would not be large. To begin with, your trees would not come into bearing for some time and your berries might well be planted between them. Then, since the peach trees would be gone before the apple trees come into bearing, plant your peach trees between the apple trees, and when the peaches have outlived their usefulness cut them out and the apples will have enough room. Pears, plums and cherries require but little room, as they do not spread as much as the apple. It is surprising to find how much can be planted on one acre of ground. If you have currants they may be planted on the north side of your south fence.

Let us examine the different fruits, and make a list suited to family use. Of strawberries there are a number of varieties that would answer. If the Crescent was a stamineate berry I would certainly take it; perhaps I would anyhow; but since it must have another to fertilize it, lay it aside and you still have a host of varieties to choose from—Captain Jack, Bubach, Parker-Earle, and others; 100 plants of two different varieties would be sufficient. As for raspberries, I would plant Kansas for blackcap, Cuthbert or Turner for red; 100 of these would be sufficient. Blackberries: Early Harvest is doing well, and by planting 50 of these and 50 of a late variety you would have all you would need. Snyder is doing so well with us that I believe I would plant it. It is the hardest, and rust and weather seem to make no headway against it. Taylor, Kittatinny, Lawton and Erie are much larger, but do not do as well. These are to the Snyder as an experiment is to a certainty.

I would plant 100 grapes, principally Moore's Early and Worden. The Worden, I think, will take the place of the Concord for home use, as it is larger and sweeter. It is more tender, however, and this may decide the point for Concord.

Of cherries I would plant 10: Five early and 5 late. Richmond or Dye-house, for early; Morello and Wragg, late.

Plums, 10: Abundance is doing well with us; Wild Goose will always be good, and Damson.

Pears, 10: Seckel, Bartlett, and dwarf Duchesse d'Angouleme, and if you want a late one, Kieffer is as worthless for home use as any I know of.

Peaches, 20: You can get a succession from Alexander, Hale's Early, Crawford, Champion, Crosby, Stump the World, Elberta, Old Mixon Free, Salway, and Heath Cling. There are many other good ones, but there are too many to enumerate all.

Apples, 40: To be selected from Early Harvest, Cooper's Early, Maiden's Blush, Grimes's Golden, Jonathan, Huntsman, Winesap, Genet, Milam and York Imperial.

All of these would require but a little over an acre, and there will still be room during the first five years for sweet corn and potatoes. If possible, the ground should have a gentle slope to the south, as this will insure the early maturity of your berries and vegetables. The plat should be rectangular in the ratio of about two to one, the rows running the long way, at right angles to the slope. This will make it easier to cultivate, and at the same time prevent the soil from washing away with each rain.

The cost of purchasing the plants and trees would not be much in excess of \$16, and they can all be obtained from any reliable nurseryman. They could be planted by an industrious person in a day, and could be plowed and hoed in less than a day.

Paper by Gerald Holsinger (not furnished for publication).

E. B. COWGILL: "I understand that some of the members have experimented with a patent tree wash. I would like to hear from any one here that can tell us something about it."

A. CHANDLER: "I used a tree wash last year on apple trees for borers and insects. I have been troubled in my timber (recently cleared) land with borers, and if I had not taken this precaution they would have been worse. It is known as the 'Carnahan tree wash.' Obtaining it ready prepared in a can, I applied it in June with a whitewash brush to the tree trunks and a portion of the limbs, and found it very beneficial. While it will not *destroy* the borer, I think it will prevent the borer beetle from depositing eggs on the outside. From the healthy appearance of the tree and the smooth appearance of the bark, I think it equals anything I ever tried. It is also good for the prevention of other insects, as tree-crickets, etc., and I think it will destroy the curculio to some extent, and will prevent insects climbing the trees. My trees never looked more thrifty. I cannot say it will prevent root-rot."

F. HOLINGER: "I would like to inquire whether your ground was thoroughly cultivated?"

A. CHANDLER: "All the cultivation I could give would not prevent borers. I applied the wash from the ground up, as far as I could reach. It cost about 2 cents per tree from four to six years old, and I do not know but what that might be reduced. This wash is obtained in gallon and half-gallon cans. It should be applied about twice a year—spring and fall. Costing about 4 cents per year for each tree."

T. A. STANLEY: "Would not a strong lime wash do as well?"

A. CHANDLER: "No, I have no success with it. If the borer is in the tree, you must dig him out with a knife. By examination you can tell whether borers have deposited eggs or not. I do not say it will rid the tree of borers if they have been allowed to deposit eggs and are left for years. It makes the tree grow more vigorous. I do not know what is in this tree wash, but it did no damage."

F. HOLINGER: "I had some of this tree wash sent to me, but I had so little confidence in it I gave it to a neighbor. The only tree wash I use is fertilization and cultivation. If you give more time to cultivation than to these washes more

would be gained. My remedy is simply take away the insect by scraping off with a knife."

B. F. SMITH: "Chandler has tried this wash, and it has proven successful with him. There are always new things being tried. If he has found something good for trees, we should not object to it. If I receive a package, I will try it."

T. A. STANLEY: "My experience with borers will date back as far as 50 years ago, when I was a boy, and the best thing to exterminate them with was a jack-knife. A Boston gentleman visiting my father went into the orchard and asked father if he had ever seen any borers. Father told him he knew nothing about them (they were something new in those days). Examining a tree, he took out his jack-knife and went to work near the ground, and he soon showed why the tree was not doing well. With his knife he dug the borer out and said the jack-knife was the best exterminator he knew of. My experience is, if you will attend to it about the 1st of June, when the beetles come out on the tree and deposit their eggs behind loose scales of bark, and wash the tree with strong lime wash, it will kill them. I prefer lime wash to any 'nostrum' ever introduced. When once they get into the tree no wash will take them out. Horticulturists have been deceived enough by patent nostrums."

E. J. HOLMAN: "By instinct this insect never lays its eggs on the surface. It lays as completely in the wood as the locust, which punctures almost to the heart of a twig. A borer lives three years in the wood; the third year it comes out in perfect form. It goes below in the wood every winter, and the third spring passes the cocoon stage there. They lay about 50 eggs, each placed separate and apart in the wood. Rarely does an egg fail to hatch."

J. W. ROBISON: "These beetles are very fierce. Put a half dozen into a bottle and they will beat a bull fight, and will not stop until they kill each other. She is a philosopher; she makes punctures sideways, so the eggs can be laid in a row, and the bark close back over them. It is only a few days until they hatch; open the lip where deposited, and you can see them as plain as if you had stuck a knife in there. Without cutting the bark, put your knife under the lip, and you can hear the eggs crack. The larva works there until of the size of a pea, working round and round, and then usually starts upward. He cuts until he gets level with the surface of the ground, staying there until the next season. He comes up early in the spring. My practice is to hoe around the tree before the time for the round-headed borer to deposit eggs. I keep the weeds clear, so that I can see where the borer went in. If he has been in a year or two he is near the middle, and you had better leave him alone, as it will injure the tree to remove him. It is impossible to get rid of these borers by a wash, because the eggs are covered. There is no connection between the round-headed and flat-headed borers."

T. A. STANLEY: "It requires three years for the borer to mature and come out. In my experience the borer selects a spot where loose bark is on the tree, and goes in where it is tender. It lays eggs in even rows. These eggs stay under the bark but a short time when they hatch and the little worm eats into the tender bark, and goes through it, to live and grow there; when large enough they go into the body of the tree. They stay there for three years. Scrape off the bark and put whitewash on the eggs and it will destroy them."

H. L. FERRIS: "The agent sent me two cans of this Carnahan wash and, following the directions carefully, I applied it to 400 trees. Two men went ahead and scraped off the loose bark, so that we could apply it well. We put it on the limbs also. The trees were 16 years old. We plowed and cultivated the orchard

well. These trees were full of borers. I kept three hands several months taking them out."

PRESIDENT WELLHOUSE: "By taking a knife and cutting into the tree and running a hooked wire in you can pull them out. Each female beetle deposits 50 or 60 eggs, and we find it better and less expensive to hunt the borer early in the spring. By carefully examining the bottom of the tree for six or eight inches above the ground you will see a little brown spot. He came to the bark the fall previous and sets about two inches back in his cavity. If you wait until May he is out and gone; he is easier taken out in spring than later. By killing the insect you prevent the egg-laying; we always have our men examine for the insects that are about to come out. It is easy to find the little brown spot about the size of your finger end, and you invariably kill them by pouring a few drops of coal-oil from a machine can into the cavity."

DR. J. STAYMAN: "Can we prevent the borer from entering the tree? I have practiced banking up my trees as steep as I can, about a foot high—less may do. The beetle will not deposit eggs where the tree is banked up. I have practiced this for 30 years and have never seen a borer in my trees since I began it. Like these gentlemen, I at first cut out the borers. We can prevent them by banking up. By instinct it knows the bank will wash down."

F. HOLINGER: "Do you treat your peaches the same?"

DR. J. STAYMAN: "I make no exception. If it deposits its eggs, how easy to scrape away this mound."

A. OBERNDORF: "At what time of the year do you do this banking?"

DR. J. STAYMAN: "Early in the spring. I never saw a flat-headed borer on a tree that was banked. They always work on the south side, where the sun shines on the tree."

EVENING SESSION, December 10, 1895—7:30 P. M.

President Wellhouse opened the meeting.

The following papers were then read:

GLASS IN HORTICULTURE.

By William H. Barnes.

The use of glass or glass-covered structures for the protection and forwarding of fruits, vegetables, and flowers, long considered as an extravagance and luxury, is to-day a necessity, and the extent of its use can only be guessed at.

Glass is useful in horticulture, from the tiny bell glass or glazed box 8 x 8 inches, protecting a few early melon or cucumber hills, to the elaborate conservatory or palm house towering high in the air, and with artistic beauty in all its lines and curves.

It is intended that the horticultural society should be educational, a school for horticulturists; and the present officers of the Kansas State Horticultural Society intend it shall be useful if not ornamental; and while I have a warm heart for artistic landscape gardening and elaborate glass structures, yet I desire to show the value of glass to the ordinary gardener—the man or woman who hopes to get bread out of its use.

Perhaps a few leaves from my own experience will be best given here. While I have had hundreds of sashes over cold-frames and hotbeds, I have also had several varieties of greenhouses.

My first greenhouse was built many years ago. It was 30 feet long, 10 feet wide, covered with a pitched roof of 6-foot sashes. The north end was boarded up, with a door in the middle for entrance. I laid off an alley down the center

two feet wide, and putting posts on each side, I boarded up tight four feet from the ground; the outside or sides of the house were boarded up $4\frac{1}{2}$ feet high. The alley ran to within four feet of the south end, which had window sash in the gable. Now, you can understand there were two big boxes or troughs four feet deep and 30 feet long, one on either side of the middle path. Outside I had a big pile of stable litter in its second heat, and, removing a sash or two, I piled those troughs full and tramped it down hard. On top I put six inches of choice earth, and when it was raked down smooth my greenhouse looked nice. I sowed a bed to lettuce on one side, and, having purchased a lot of small flowering plants of a florist at a distance I potted them up, and, the heat coming on in three or four days, I placed the potted plants on the benches, and I was in business. Soon the blooms began to come out, and I had crowds of visitors. On Sunday I had no rest, and I finally put up a sign, "No visitors on Sunday," and I kept it up.

Much as I love the business, and great as were the inducements, I positively declined to sell plants on the Sabbath, and cut flowers only for a wedding or a funeral, and made it known that these should get supplies on Saturday, if possible.

This greenhouse was a delight and a success, although I had to fill the alley and bank the sides with warm stable litter and hang a carpet on the north end during a long, severe blizzard, and then lost a dozen Rex begonias.

My next was two houses 24 feet long, side by side, with pitched roofs and valley between. This extended south from my dwelling, and was in the ground to the eaves (four feet), and was entered from the cellar of the dwelling. I used a smoke flue and furnace. There was a raised bench along both sides and the south end. The smoke flue was of brick, built by myself, and was 70 feet long, passing under the outside benches; and the furnace was fed in the corner of the cellar. Many a cold night I have stayed there all night, and many more nights my two elder sons slept there with a blanket.

The remembrance of that greenhouse is very pleasant to me. Everything grew. Such quantities of bloom! Such hanging baskets and vines! How I wish I could be in it to-night, just as it was at its best.

My ambition now reached farther. I planned for a large commercial greenhouse. As a preliminary necessity, I built the so-called potting shed east and west. I built it well, 48x16 and $1\frac{1}{2}$ stories; put in a nice plastered office, with shelves, bookcases, and desk. I dug a pit, and walled and cemented it. Then I built three greenhouses ending up to this building and running south, two of them 60 feet long, one 30 feet long, each 10 feet wide. We entered them from the shop, as I called it.

I bought a 10-horse upright-flue steam-boiler; set it in the pit; ran the flow pipes into the houses and along just about one foot below the ridge. The steam or water (I used either) flowed in these to the far end of the houses and branched off, returning under the benches, entering the boiler at the bottom. I ran this some winters with steam, and with a very slight change I ran it with hot water under pressure.

"The Use of Glass in Horticulture." Beginning at the bottom round, I would speak of hand glasses—small frames with a single pane of glass, any convenient size. These are very useful to forward a few hills of melons or cucumbers. The glass should be removed or the frame overturned whenever the sun shines warm, and should be replaced about 3 to 4 p. m. They keep off late spring frosts and give a growing temperature within. Before going farther, I would say for the use of all glass structures an unlimited supply of water is ab-

solutely necessary, and if this cannot be had either from city pressure, force-pump or home water-works, do not build a glass structure. Rain-water is best, but is not an essential. Creek water is good, and well-water, not too alkaline, is also good. Warming the water is not an essential, but is certainly beneficial, unless plants are weak and spindling.

Cold-frames come next; they are simple frames placed upon the surface, and covered with sashes. When I speak of a sash I mean one that is standard size, three feet wide and six feet long, containing three or four rows of glass; the panes of glass lap slightly, like shingles, and there are no cross-bars. A convenient size for frames is 6 x 24 feet. I have had them 48 feet long, but they are inconvenient, as it is "too far around to get across," and too far to carry sashes in taking them off; 6 x 24 takes eight sashes; in stripping the beds, we take four sashes each way and pile at the ends. The frames should run east and west, and the back or north side should be one foot high and the south eight inches. A fence on the north is very beneficial in keeping off wind. I like the end boards to come two inches above the sides; thus the sashes are held on better. The best way to keep sashes on in windy times is to drive slender wedges of wood between them, thus crowding them tightly against the end boards where they are solid. The earth inside a cold-frame should be of the very best, well fertilized; if heavy, mix in Kansas river sand.

For hotbeds I like a similar size of frame, covered by the same kind of sashes. In Kansas, and I guess almost anywhere else, hotbeds are best made by digging into the ground and making a pit about 18 to 24 inches deep (I have made them three feet), and boxing up inside with old lumber. Along the surface they look exactly like a cold-frame.

Stable litter should be brought and stacked in a square pile, say seven or eight feet square, and seven or eight feet high, laying it smoothly in layers and treading down firmly. In three to four days this heap will be in a hot ferment; it should then be turned. This requires two strong men. It should be taken down carefully from the top and the cool outside parts put into the center, and the hot inside put on the outside of the new heap. This is for the very same reason that a woman in kneading bread continually turns it outside in—to get an even ferment. All lumps and compact parts should be shaken up light, yet it should be immediately trodden down hard in the new pile. A second fermentation soon sets in, and some gardeners turn it again. This must be done if you are delayed by other operations, or it will heat too violently, the same as bread will sour if left too long.

If your pit is ready, proceed to fill it. This requires three or more persons—one to throw it off the heap, one in the near end of the pit, and another farther along. This hot litter should be placed in layers—that which was in center of heap and hottest should go at the outside, and the cooler in the center. Do not let it pile up in any place; keep it level, and tread down firm. Fill within four inches of the top edge of the front board. Place on the sashes, and a day or two after level the top by beating with back of a rake, and put on four to six inches of rich, mellow, sandy earth. In a couple of days more this earth will be warmed through, and after the violent heat subsides—it will get to 100 degrees—plant your seeds. Watering must be daily attended to, in the morning. If watered later the temperature is lowered too late in the day. Give plenty of air, always from the side opposite the wind.

Forcing pits or small greenhouses are safer in Kansas if put in the ground; dig four feet deep; 10 feet in width for each house. Board up the sides with any kind of lumber, but the top boards must be good. A gable end is built up on

the south, and should be glazed. Some kind of a potting shed and fire pit must be built against the north end, the entrance to the structure being through this potting shed. Benches—the long tables plants grow on in greenhouses—are constructed $3\frac{1}{2}$ feet high on each side, each four feet wide, leaving two feet for an alley between. A ridge board is now put up, and sashes put on each side, giving about one-third pitch; eaves-troughs may be added if desired. If heated by a flue, it should begin as low as possible on one side, and rise one foot or 15 inches in first 10 feet. This will give it a draft, and it can then go on a level for 40 or 50 feet; then gradually rise to the chimney. Such a flue is easily constructed of bricks; it should be well plastered or cemented inside and out to prevent the escape of smoke and gas. It is built under the benches, to give bottom heat. No woodwork must under any consideration touch it at any point.

The furnace may be built of stone, fire-brick, or iron, or of a combination of all three. If for burning wood, make it long enough to take in cord-wood and big enough to take grubs, knots, and roots, enabling you to use a cheap quality of wood. If you desire to heat with hot water or steam you will need a boiler. Many of the elaborate patent boilers are no better than a good plain affair that can be made near home.

I have tried both steam and hot water under pressure. I think for very large concerns keeping a night hand steam is best, but for ordinary work I prefer hot water under pressure. The piping required is about the same. In either case I would run the flow pipes overhead, the highest point being directly over the boiler, and then down hill to the far end of the house, and thence fall and return under the benches to the bottom of the boiler. The flow pipe should be $2\frac{1}{2}$ or 3 inch, and the returns should be 1 or $1\frac{1}{2}$ inch, and numerous—not less than three under each bench.

Conservatories may be warmed in the same way, or the pipes may run along the walls, the flow pipe above the return. Such arrangements are simple, easily managed, without danger, and give a mellow, pleasant warmth. These pitched roof houses are not the best for special purposes. Most flowers for cutting grow best in houses running east and west, with a three-quarter-span roof, the long side facing the south; that is, three-fourths of the roof facing the south—and not less than 18 feet wide.

But Kansas horticulturists and gardeners must grow a variety, and the best houses for such use are the low, 10-foot, pitch-roof houses. In them we can grow lettuce, radishes, tomatoes, cucumbers, and at the same time Easter lilies, hyacinths, narcissus, tulips, geraniums, fuchsias, vincas, verbenas, etc., for plants, carnations and roses for bloom—fewer in number, later in season, but finer in texture and more lasting than in the special rose houses.

The Kansas gardener having two 60-foot low houses should also have 100 to 200 loose sashes, 40 or 50 shutters same size as sashes, and 40 or 50 shades made of lath three-quarters of an inch apart. Supposing he is thus equipped, or in same ratio with only one-half or one-fourth as much, he will begin, say, August 1 by filling the benches with rich, sandy loam, into which he will at once plant thrifty young roses a foot apart on, say, 10 to 30 running feet of bench four feet wide, where the morning sun comes in best. Water well and shade a few days. In a cold-frame outside he will sow in rows a large quantity of choice pansy seed, English daisy seed and tennis-ball lettuce seed. Beat with the shovel and water well; then put on the shades, and keep it perfectly dark—nearly all seeds come better in the dark. September 1 he will bring in from the field 200 or more clumps of carnations, and plant eight inches apart on the bench. He will fix

his cutting bench of pure, clean Kansas river sand about three inches deep where the bottom heat is the greatest.

During September he will make hundreds of cuttings of the various bedding plants and place in this sand, half an inch apart, in rows two inches apart. He will pot up hundreds of hardy bulbs, which he will bury in a cold-frame, covering them four inches, pot and all, and put leaves or hay thinly over, and then the shutters. These he will take up a few at a time during the winter and bring into the greenhouse for successive blooming. The Easter lilies are now potted but not buried; they must be kept growing. On all vacant space in the greenhouse he will set out lettuce plants eight inches apart. Soon he must fire up at evening and until 9 A. M. This is the time—and again in spring—that I like steam. If the water is kept hot all day, you can at 4 P. M. close the ventilators, and as soon as you get steam you feel it through the house. Again in the morning it may be cool until 9 o'clock; then the sun comes out strong, and you turn off the steam and depend on the sun. With hot water you will sometimes find it a long and tedious job to get up a circulation; cold water and cold air in the pipes must be forcibly pushed along by the newly heated water, and the house gets cold and you get anxious and impatient; again in the morning old Sol shines out, and the house gets stifling, because the pipes are all full of hot water and they must cool right there. Your only way is ventilation, and there may be a keen, frosty air moving.

Properly managed, you will have plenty of lettuce in the frames up to Thanksgiving, and a full crop in the houses for Christmas, and another crop by March 1. The pansies seeded in August will be big enough to handle in October, when you will reset them four inches apart, in rows six inches apart, in similar cold-frames. When severe weather comes cover with the slats, and about January 15 take off the slats and put on sashes, and by March 10 you will have an abundance of pansy blooms, and plants will sell fast.

In October you will fill all your spare frames with lettuce, set about eight inches apart, and when cold weather comes cover with sashes. They make enormous roots during the mild weather, and are not expected to grow until February.

About December 15 put a few tomato seeds of Lorillard's or Atlantic Prize in a box or pot in a warm corner in the greenhouse; as they grow transplant them into thumb-pots, soon into three-inch pots, and soon after turn them out carefully and plant at each edge of the bench, back and front, about every three feet; pull off the lower leaves and allow them to run up long legged, above the lettuce or small pot plants; pinch out the tip and they will fork; train to wires or sticks, always using cloth strings to keep from cutting. In May you will have tomatoes at 25 cents a pound, \$12 a bushel, and not interfere with any crop in the houses.

In February take a flat or shallow box and fill with clean sand; plant in it, in clumps of four, some improved White Spine cucumber seeds. As the third crop of lettuce matures, cut first a head in center of each bench every three feet, and loosen up the soil, and with a trowel lift each clump of young cucumber plants and plant in these pots; also set the pot plants around so you can continue the cucumbers everywhere excepting among the roses and carnations. In April and May you will get 10 cents apiece for cucumbers; the lettuce will be gone from the houses, tomatoes will be plentiful, plants in demand, etc.

I have left little time to talk of conservatories, but will begin by saying that the greatest fault with them, and bay windows, is the roof. If you build a conservatory or a bay window, be sure to put a glass roof on it, if you want satisfac-

tion. The southeast nook is best for conservatories, and if the house roof slopes that way you must put a guard on the cornice, or ice sliding down some sunny winter morning will create havoc. This, I presume, makes you think of hail. Well, hail does not agree with glass. I looked at my houses once in their beauty, and in three minutes 1,500 lights of glass were only jagged openings. The storm was only a few left-over hailstones, but they were as big as hickory-nuts. Next morning I got out this circular, as soon as possible; it was copied verbatim in a New York paper, labeled : "A Sample of Kansas Grit."

ALL HAIL!

A SMASHING BUSINESS.

A GREENHOUSE IN RUINS.

A crop of broken glass gathered in. I am willing to divide ; so open your hearts, get a splendid bargain, and assist me to repair loss. Choice Bedding Plants, without pots, in lots of \$1.00 or more, as follows :

- 16 Ten-cent plants for \$1.00.
 - 10 Fifteen-cent plants for \$1.00.
 - 8 Twenty-cent plants for \$1.00.
 - 6 Twenty-five-cent plants for \$1.00.
-

These are Geraniums, Fuchsias, Roses, Begonias, Cannas, Fever-fews, Ageratum, Lantanas, Verbenas, Petunias, Coleus, Smilax, Pelargoniums, Day Lilies, Ivies, Heliotropes, Mignonettes, Hydrangeas, Hibiscus, Mexican Primroses, Double Pomegranates, Cooperias, Spotted Callas, Caladiums, Water Lilies, etc.

Large Pansies, 40 cents per dozen.

Smaller Pansies, 28 cents per dozen.

Gladiolus, 25 cents per dozen.

Tuberoses, 5 cents each.

HAVE ORDERED A SUPPLY OF ELEGANT ROSES AND CARNATIONS FOR COMMENCEMENT.

Our flag is still there. Come and gaze on 1,500 New Openings.

BARNES, THE FLORIST.

The use of glass in horticulture is a fascinating pleasure combined with a good profit. How pleasant to have grapes, peaches, strawberries, tomatoes, lettuce, radishes, cucumbers, parsley, flowers, trailing vines, and even mushrooms and watercress, when the outside world is locked in the icy clutch of winter. Like any other business, to be successful, one must be earnestly interested, not momentarily fascinated. All points must be carefully considered and nothing neglected. An afternoon at a football game may discover to your returning gaze a lot of dying plants. Snuggling down in your comfortable bed on a stormy winter night, to your morning sight may be disclosed that Jack Frost has plucked every beautiful promise and left you a saddened memory of what "might have been."

No farm or garden is complete without some horticultural glass. Don't be afraid to try it. Get a few sashes, and every failure will be but an educator, and with perseverance you will not only conquer but will grow enthused, and declare that glass in horticulture is the most satisfactory and enticing of occupations. The true gardener is as surely an artist as the painter or sculptor, and it just as surely requires artistic talent to become a successful horticulturist as it does to become a painter of the most beautiful and harmonious picture.

Ladies, if you want your conservatory or bay window to do well for you, have the roof and all heavy and ornamental woodwork removed, and have the roof of glass and the woodwork of the lightest material consistent with strength; have the floor covered with zinc or galvanized iron, turned up two inches all around, with a small waste pipe running through the floor or side of the house; have the sashes so fixed that they may be let down from the top for air. There are many "helps," and yet there is a real need of an exhaustive work on "Glass in Horticulture," which will explain the minor details. Wealth can employ experts, each in his line, to build, heat, oversee and run an establishment, for pleasure or profit; but the man of small means, and the labor of his own hands, must learn by experience. It is an elevating and fascinating occupation, and brings into play talents that need utilizing; and if earnestly and diligently pursued profits are sure to follow. If any citizen of Kansas wishes to inquire farther, the office of the State Horticultural Society is open to him.

GOOD TIMES FOR EVERYBODY.

By Miss Lucy D. Kingman, of Topeka.

Our nation is the concrete expression of the individual, and when the individual fills his life full of joy and peace and good will the nation will be a prosperous nation. But, in biblical language, we must each work out our own salvation; or, as Bulwer puts it, "A man gets on by a spring in his own mechanism, and he should always keep it wound up." It is not money alone that gives contentment; but a living, loving interest in the so-called common things around us. Some one has said that "The things best worth having cannot be bought at all; all that are worth having are free to all"—that is, nature and labor; and nothing next to a loving heart will contribute more to the appreciation of the true worth and wealth of nature than a scholarly understanding of the natural sciences. Let a man get his geological eyes opened with a little study, and perhaps he may discern surface indications of coal or iron, or a gold-mine beneath his land. Or, he sees a boulder on the hillside; he examines it, and discovers a foreigner, and tells us how it came down from the far north, and how it benefits and beautifies its present abiding place. Or, again, he finds interest in that peculiar stone, which the uninitiated stumbles over; it contains for him a revelation, which, with

his interpretations and deductions, develops into the key-note of the history of a hitherto unknown people. He continues his researches and becomes more than a geologist. He is an archæologist, and unearths whole cities, adding to our wealth of knowledge the art and architecture of ages ago. Now, any one can study geology alone; and this wide field is open to all.

One lady has made the study of living birds her special fad, and one of her great pleasures in crossing the ocean was that she might hear a lark sing. Her joy at the realization bubbled over into a charming letter, which contributed to the pleasure of many friends. The unselfish sharing of such pleasures always brings quick returns. Every one enjoys a harmless fad, and, if possible, contributes to it in some way.

Our own Professor Goss took up the study of ornithology after a great bereavement, and in the diligent and energetic pursuance of it found an occupation which took the place of grief; and the result of his labor is a monument to his memory, and one of the chief attractions to all who visit our capitol.

But to this Society I would commend the much-neglected study of botany, together with the habits and peculiarities of plant life. Such a study may be not only of very practical use, but it also cultivates a taste for the beautiful, a love of nature, and quickens the powers of observation. Any one with a good microscope and some knowledge of botany need never lack for entertainment, and may become an inspiration to all around him. It was at one time my good fortune to often meet Prof. J. H. Carruth, and I so caught the spirit of his botanical enthusiasm that I began to note even the varieties of weeds that grew along my daily walk, and I soon knew by observation how many kinds of grasses grew around Topeka.

Besides the pleasure it gives to have a more comprehensive knowledge of flowers and fruits around us, there is a chance along this line for every one to serve his country as truly as any hero in the war and gain for himself everlasting fame. Whoever produces a grape better suited to our climate than the Concord—a grape as good or better than those from western New York—will have achieved a triumph well worth striving for. Who is to find a way to insure against pear blight? He who does will confer a blessing upon Kansas. And here again is a chance for every one. We have not yet learned the secret of raising late potatoes—potatoes superior to those of Colorado and Michigan; and it is surely within our reach, and the pursuit of it full of living interest, and the goal is well worth the effort.

Why does n't every one who has a few acres of land plant at least a half dozen quince trees? Just think! they sell by the pound, and are always scarce. Of course, they grow slowly, and I fear many of us have our eyes set, and see no good in seemingly small things. If we cannot raise wheat and corn and hay and cattle, and buy and sell land at fabulous prices, we just won't play. There is a world of riches within our reach, if we could but get our eyes opened to see it, and gain knowledge enough to realize it; nor is it any political party that is depriving us of it. Indeed, it is *ours now!* But the man who lives over a gold-mine and has not the wit to know it is no better off than the most miserable tramp; and *we* are not unlike him, and hence we howl "calamity."

Real wealth is the power to make everything contribute to our comfort and contentment, and a scientific knowledge of all our surroundings, within the reach of every one who will work for it, must be a step toward this result. It is the application of a superior knowledge of the sciences which makes Jules Verne's books so fascinating, and brings his heroes through such hairbreadth escapes to such triumphant conclusions.

The inventor and the investigator need not sigh for new worlds to conquer so long as Kansas is to them, as yet, an undiscovered country ; nor until he (and I mean by that she also) has given us a fine fabric woven from the cultivated seeds of the cottonwood, of which we have a bountiful harvest, in spite of winter weather, drought, or deluge ; or has turned millions into our coffers by discovering a practical use for our immense annual crop of sunflowers, of which Noble Prentis once said : "Nothing chokes it nor kills it. Grasshoppers have never held the edge on it, and in droughty times, when everything wilts and holds up its hands, the sunflower continues business at the old stand. It probably has some private arrangement with nature for securing 'aid.' "

And will our inventors not find some use for fallen leaves ? Can they not pack them in some way, and convert them into the winter's kindling, thus relieving us of our autumnal smoking from smudge fires of half-dried leaves ? These are a few suggestions of the many practical things that may be done *right here and now* to make life worth living. There is always a zest in pursuit, whether it be of animals or ideas, and if you catch an idea write it down ; in so doing you will add an untold interest to the chase, and also preserve your game for future use, perhaps to be read before the State Horticultural Society. But let us never forget that there is an abundance of good things all around us, if we but seek them and win them to us by a persuasive, persistent wooing, "despising not the day of small things." "For there is a loveliness in common things could we but discern it, and divine forces are all the time at work converting ugliness into beauty and hearts into holiness."

HARDY GARDEN FLOWERS.

By Prof. E. A. POPENOE, State Agricultural College.

Your true flower lover is not a specialist ; rather, he specializes in all these beauties. He takes exception to the several exclusive tastes which guide certain enthusiasts in flower culture. He is fond of roses, but he does not adopt these to the exclusion of other worthy genera. He makes use of poppies and marigolds, but not to bar the use of sorts of equal merit as show flowers, and of superior delicacy and fragrance. He admires and grows lilies and tulips, but his garden contains also the beauties of other seasons. He finds room for violets and primroses, and by his methods of combination he secures not only their own charming bloom but their assistance also in developing the full beauty of other spring flowers. For combination is the high art of gardening, and this is true in detail as well as in breadth. We can easily appreciate the devotion of the thorough specialist to the objects of his choice, but we can more often share the enthusiasm of the true flower lover, who cannot find heart to exclude from his care floral beauties of all worthy classes ; and I believe that he after all realizes most fully the satisfaction from such pursuit who, with the ardor of botanist and gardener combined, grows the hardy garden flowers.

Much misconception exists as to the true meaning of the term "hardy" in this connection. Many of these plants are indeed hardy in the most rigid sense of the term. They will stand heat, cold, drought, wet, neglect, and still give unstintedly their best gifts to oftentimes an undeserving owner. Such, however, are not always the most desirable of what we call hardy flowers. Many of them are yet indispensable, and respond to good culture in a way that finds them a place in every well-selected collection. But the good things are not all to be had without effort, and that gardener who has pursued only the let-alone style of treatment has many delights in store for him when he awakes to a just perception of the cultural needs of even the hardy flowers. Hardiness comprises many qual-

ties of resistance. Some conceive this term to imply only resistance to cold. On this assumption, our growers in the far north advertise those plants as hardy that pass unharmed through the winters of that latitude. The Kansas grower, trusting their classifications, is often grievously disappointed, finding that hardiness in this state means more often tenacity of life under extremes of heat or drought, resistance to drying winds, and quite often an ability to survive a dry, open, relatively warm winter. The culture of these plants is thus still largely experimental with many kinds, and every fact as to their hardiness, in the broad sense, is information we need.

The hardy flowers appeal especially to the lover of natural beauty as contrasted with the formal elegance of the ribbon garden. Some of their characteristics do not comport with the uniformity so dear to the city lot-owner. Yet he may retain for his grounds their air of absolute trimness and still enjoy many of the best perennials, than which no exotic is a superior ornament. A word as to the position of the hardy garden, with respect to other house surroundings. Your landscape-gardener will properly insist upon the broad front lawn of neat greensward, with its appropriate setting of trees and shrubs. While, properly related, the border may be brought into the lawn space, it is not necessary or always desirable to so arrange. It may be set off by a shrubbery screen, so that its attractive features may only be seen when sought. Thus the quiet harmony of the lawn may not suffer, while the more vivid and less assimilable beauties of the border may have the added advantage of protection from the injurious sweep of the breeze from whatever corner it may come.

In the preparation for planting, we should take note that the annual renewal of our plantation is not desirable. I do not think that, once planted, the border is to call for no care or renewal for years to come. Many things need frequent change of place to supply their peculiar soil food, and rank growers, rapid in their multiplication at the root, must be often divided to secure the best results in abundant and large flowers; but, after all, the bulk of the material is in a manner permanently placed, and at least a complete change of position is not proposed for many years. Therefore the ground to be occupied must have very thorough previous preparation. This, in ordinary Kansas soils, demands trenching, or at the least subsoiling in some effective way. Your plants may on the average thrive in ordinary garden soil, prepared by the usual method of plowing or spading; but in the trying summer, if your ground has been subsoiled the less-resistant plants will have rooted deeper into the open layers below, and they will bear the drought vastly better than those on other soil. So will the winter prove less trying to the imperfectly hardy sorts if they have been induced to root deeply into a prepared soil. Though more expensive in the matter of labor, the method of trenching is, after all, the ideal way of preparation. It admits of the improvement of the soil to the depth of the breaking by the addition to ordinary clay loam of sand and well-rotted manures, a treatment that will give returns in rich and abundant bloom to satisfy the most exacting flower lover.

We are often referred to our grandmother's garden as exemplifying much that is desirable in the selection and arrangement of flowering plants of this class. Admitting the truth of this claim in many respects, I believe that grandmother, if with us to-day, would acknowledge the improvement of the garden favorites since her time, and the addition of many most attractive new things. Grandmother grew "Pineys," but she was not acquainted with the wealth of beauty to which we are introduced through the labors of the French hybridists of these noble perennials. Larkspur she grew in considerable variety and in wild profusion. But her good old eyes would have opened wide with delighted astonish-

ment could she have seen the varied riches of a group of such plants we now grow from a single packet of seed of Lemoine's hybrids. She had a corner gay with "Youth and Old Age," and some of us overly critical youngsters may have objected to the prevalence of dull reds and purples in all degrees of singleness that her best flowers showed. The zinnias of to-day are reminders of her, though they glow with a purity of color and show a perfection of form and fullness far beyond her dream. The good old pinks, those never-failing sources of satisfying odor and velvety color — what wonderful products of selection and hybridization we now have in their successors! Some of her roses, indeed, are in our gardens to-day, still the best of their kind. Yet we all wish that she might enjoy with us the queenly beauties which, after her time, have come to heighten the June glow. To our sigh of regret that she can never see these perfections of floral beauty we must, however, add a thought of thankfulness that she was spared a sight of the creations of the devotee to carpet bedding. She never saw the national arms done in alternantheras and echeveria, or the Bengal tiger in colors, or the much-abused "gates ajar" in silver-leaf geranium. Her garden has set us the plan which the lover of flowers, as distinguished from the lover of massed color, is sure to follow. In it the flowers do not lose individuality. Indeed, they were rather grown on account of it, and were encouraged to declare it.

Unless flowers are grown for the benefit of the passer-by, who is to be impressed with the abundance of color without regard to the character of the growth that provides it, I believe that the greatest satisfaction comes to the grower through the cultivation of his pets in the style known as the mixed border. Briefly described, this is an area devoted to the growth of a variety of roots that not only furnish bright color effects when viewed at a distance, but which on near approach will gain rather than lose, through the bringing out of the beauty of habit or single flower. Here are planted, with due regard to the results of combination, sorts widely varying in style and season, so arranged that at no time shall there be the suggestion of a lack of beauty, or of any decided incongruity of association, but rather, that each plant not only shows itself at its best but assists as well in the development of the full beauty of those around it. You have seen the complete expression of this arrangement in some corner of nature's garden in a little mountain meadow, or in a woodland nook here or there in your own neighborhood, perhaps where the trailing vetch adds use to its modest attractiveness by furnishing a carpet of green as a setting of some clump of a more arrogantly beautiful, taller flower. All the better if the two are not of the same season of bloom. No part of the border should be devoid of interest, from the appearance of the first violet to the fading of the last aster. With some sorts of perennials, indeed, by the exercise of a little judgment in pruning and special feeding, we may bring about this all-summer succession of bloom in a single plant, where desirable. But harmonious and consistent variety is rather to be sought, and, with a moderate acquaintance with the chosen plants, it is not far to seek.

As guides to choice of sorts and arrangement, I can suggest no better literature for a modest beginning than the admirable catalogues of some of our best nurseries, which make a specialty of the cultivation of these popular flowers. Without disparaging others, I may name as of special worth the catalogue of Woolson & Co., Passaic, N. J., Jacob W. Manning, Reading, Mass., and Ellwanger & Barry, Rochester, N. Y. The first two named are especially veritable handbooks, and whatever other books of more imposing style you may own, you will find these of much practical use. For other works, when you come to purchase, get Parsons's "Landscape-Gardening," Hemsley's "Hardy Trees, Shrubs,

and Plants," Ellwanger's "The Garden's Story," and, if you read French, the invaluable "Fleurs de Pleine Terre," of Vilmorin, a most admirable treatise, giving full description of plant, method of propagation and culture, with truthful illustrations of almost every species and variety.

In planting a moderate border, what shall the beginner choose from the wealth of material available? Much is to be had at little cost, sometimes, as with our best native sorts, for the labor of digging.

Many of our friends will have something to spare—here one thing, there another; so that a very respectable beginning may be had with but little outlay of cash. It is, in fact, a most desirable feature of many of these plants, that they increase so rapidly under proper care that we may soon have from a small beginning enough for more ambitious planting on our own grounds, as well as plenty of plants to use in exchange with neighbors of similar tastes, or these failing, to give away. It will astonish the novice to find what a large number of the best of these hardy plants may be easily had from seed. The product of the expenditure of a dollar or two in judiciously selected sorts will bring to a careful grower many things not excelled by the best named plants of the nursery lists. With some genera, as the perennial larkspur, the snapdragons, and the like, it is doubtful if it pays to buy plants of named varieties of the florist, because you may get their equals in greater quantity by raising seedlings of the many fine strains offered by the best seedsmen.

Of many genera the plants may be had in bloom the first summer, if the seedlings are started early; and of the most of the others the second summer will give as fine flowers, even if fewer of them, than succeeding years. The tardy germination of some sorts discourages some who are in haste to see results. In a great many cases it is better to sow such seeds in friable soil in the late summer or fall, when they will germinate, if not at once, by the next spring. The plants within our reach in this line of gardening are so abundant, and their various beauties so attractive, that it is difficult to name the indispensable few; but these are perhaps better selected by our wishes for a summer's enjoyment, choosing such as will give us bloom at different seasons, where we cannot have all in bloom the entire summer through; and the following list, though incomplete, may serve as a suggestion:

Of the violets, we may grow with little trouble two or three pretty native species and the most hardy of the fragrant English sorts. The hooded violet of our fields takes kindly to cultivation and is much improved thereby. Its broad hemisphere of bright green leaves is admirable after the bloom is gone as a carpet between later and higher plants. The bird's-foot violet of the eastern states is one the best, and we may have it in white, blue, and purple. The best of the English violets will need attention to the summer growth, mulching to protect from drought, and a careful covering over winter, with abundant but open litter.

The moss phloxes are unexcelled cover plants, their long, prostrate branches rooting at all points and covered with finely cut leaves, making them specially available as a carpet. Their early blooms hide the plant with a mass of tender color, and all are delightfully fragrant. As they bloom especially on old growth and are essentially evergreen in character, they must be protected by an open mulch from the sun and dry winds during winter.

Of the columbines there are so many admirable forms that one is tempted to name them all. Perhaps none of the absolutely hardy species are more hardy than the true Canada Scarlet, native of an eastern territory. Two forms, a dwarf and a tall, are had, adapting the plant for a variety in position. The beautiful Rocky Mountain species, the blue and the yellow, must not be omitted,

though averse to our open winters and dry August. The old garden species of European origin furnishes us some clear white, rose, reddish-purple and deep blue varieties of great excellence, and these are hardy even under neglect, though well repaying care.

The bleeding heart, as some prefer to call *dicentra*, must be included in every collection. It is unexceptionable in foliage and in flower. Buy a start, if you must buy, of a home nursery; the imported roots sold by florists are dry and difficult to establish.

If Narcissus was of as pure a beauty and form as are the daffodils that now bear his name, he could not be blamed for his admiration of his own image as reflected back to him from the surface of the water that served him as a mirror; and if you have not grown daffodils much delight is yet to be yours. Buy next September a few bulbs, of Golden Spur, Trumpet Maximus, Sir Watkin, Empress, Horsfieldi, or of a dozen others that may be selected from the catalogues. The above-named have all been well tested and will prove satisfactory. Well planted, most of them will multiply rapidly, and give a golden bloom in spring unsurpassed by any flower at any season.

Of tulips, my preference, after wide trial, is for the later rather than for the very early sorts, though a few of the very best earliest are welcome in their season. But the true beauty of the tulip is found in the magnificent tall, late sorts, of all colors (save blue), from white to dark brown, self-colored and in various combinations. They hold their bloom surprisingly long for bulbous plants, are excellent for cutting, and of easy culture. It may be said here that these and the daffodils, while properly called hardy, are at their best only when they have been well protected by a good mulch over winter. In setting, rot is largely prevented if the bulb is surrounded by clean sand, avoiding direct contact with manures or rich loam.

A perennial pure white candytuft (*Iberis sempervirens*) is well worthy of your care. It is an evergreen, and is most likely to fail for lack of protection from sun and wind during the winter. Place about and over the clump a bushel or two of dry dead leaves, holding them in place by any means that will not too closely pack or confine them, or rot them down, and you may enjoy the full beauty of this too-little-known plant.

In a choice of peonies one can hardly go astray. The long lists of the nurserymen are confusing by the very abundance of description. Avoid, if any, the magenta purples. There are plenty of clear colors—pure white, light and dark rose, and crimson, and by a selection of half a dozen or more sorts you may have some in bloom throughout six weeks of May and June. Some growers fail to make them bloom. I suspect deficient culture is the main cause for non-blooming. Plant them deep, give them rich soil and plenty of food afterwards, to be sure of best results. Cover the crowns over winter with a good forkful of barn litter, and you cannot fail.

Pinks: What a noble genus is *dianthus*! Let us have plenty of them. They grace alike the border and the vase. We may have them as annuals, biennials, and long-lived perennials. The habit of all alike permits their full employment. Some of the old grass pinks, the Pheasant's Eye, and a few less-well-known sorts, make an admirable carpet about tall plants of other style of growth. The magnificent possibilities of a few packets of seeds of the choice Chinese and Japanese hybrids are known to many. Early sowing gives us much of their beauty the first summer, and with an open mulch they are easily carried through to the second, when their bloom is at its best. They are to be treated as biennials, though they will often pass a second winter, giving, however, much inferior flow-

ers thereafter. The broad-leaved Cyclops and Dentosus varieties are very attractive, but may be left out of a moderate garden without great loss.

The carnations of all sorts I have had little success with as garden plants.

Sweet-williams are with me rather hard to carry over without special care. The cold-frame, an indispensable adjunct to the hardy garden, makes their preservation an easy matter. In the open, they go best over winter when kept from sun and wet. A box loosely filled with dry leaves inverted over them protects them perfectly. I need not enlarge upon the desirability of these old-time biennial favorites, but may recommend as of special beauty the best strains of the auricula-flowered types, and some of the rich pure crimsons that may be had separate in most catalogues.

Though the tall phloxes carry the thought of midsummer as their season, it is possible to have them early and late as well. Many of the dwarfer sorts now obtainable are close successors of the true spring flowers, and by selection, aided by judicious heading back of the later sorts, we may prolong the bloom to frost. Those who know only the old white and lilac varieties should try some of the recently presented named sorts which give bright reds, salmons, pinks and purples, in self and combined colors in astonishing variety. The finest flowers are produced upon young plants, which may be grown afresh each year by rooting as cuttings the young stems broken off from their point of attachment to the crown as soon as they have attained a height of four or five inches. With a little attention to shading, this may be done in the open ground, if the soil is reasonably friable and moist.

I would not omit the yellow marguerite, so-called, *Anthemis tinctoria*, from even a small collection. Easily grown, propagating rapidly, absolutely hardy and free blooming, it will furnish not only a bright show in the garden, but any quantity of cut flowers for the bouquet, the whole season through.

The campanulas or bellflowers are of the rarest blues and purples, and are highly esteemed where known. If but one is selected, let it be the perennial Japanese bellflower, *Platycodon Mariesii*, which, once established, requires no care and is certain to produce its abundant broad bells of blue when its season comes. Its original form, *Platycodon grandiflorum*, in both white and blue varieties, is as easily grown, and prolongs the season to frost. All are readily propagated by seed.

I cannot say too much in favor of the perennial larkspurs. Their colors combine, in every possible shade, white, pure blue, and red purple; the flowers single or double. I have been specially pleased with the product of the hybridized seed mentioned before—Lemoine's hybrids—of *Delphinium grandiflorum* and *formosum*. Every packet will give you things of surprising beauty along with a few not so desirable. The Chinese larkspur is also indispensable, and survives more neglect than the hybrids. It gives us white and rich blue flowers, with some beautiful porcelain blues in mixed seed. *Delphinium formosum*, though a little tender, must not be omitted, its large blue, white-centered flowers being one of the finest of the genus. All of the larkspurs require support when in bloom, which I have provided for the clump, by a circle of stout wire, held at the proper height by three legs of the same thrust into the ground.

The irises might well attract the specialist, for the flower-de-luce is, in its best sorts, a truly royal flower. I have not space to dilate upon the possibilities with this genus, but will say that the best varieties of the Siberian iris and a half a dozen of the more distinct of the sorts of German iris will furnish a floral display that even the most careless must stop to admire. Of the latter group, the tall, pale Dalmatian iris, delightfully fragrant, and of unapproachable laven-

der blue; Madame Chereau, tall, fragrant, pure white, feathered with purple; Liabaud, the best yellow and brown; Aurea, pure, rich golden yellow; Florentina, the earliest pure white, and delicately fragrant; and the Atropurpurea, deep blue, with dark velvety purple falls, will furnish a sufficient variety for the start.

Lilies are not of our climate. More failures than successes meet extended efforts at their culture here. But some of these queenly flowers may be enjoyed if you will give them the attention they demand and deserve. All need deep, rich, cool soil. Summer drought is their greatest bane. Case the bulbs, when set, in clean sand, to lessen the danger of rot. As best proven, select for your first trial the Madonna lily, *candidum*; the Japanese, *speciosum*, and its varieties; the familiar tiger lily in its best sorts; the brilliant little coral lily of Siberia, and perhaps some of the best of the native species of our eastern states. All of these, to give good results, must be well mulched during the winter, and kept cool and moist at the root during summer's heat.

Our border would look strange without the hollyhock in its season. The culture and possibilities of this favorite are well known. Its worst features are the leaf spot, prevalent in the best double varieties, and a tendency to rot off at the crown during the winter. The former cannot be avoided, but its effects may be minimized by the early burning of the plants that have bloomed, replacing them each year with fresh seedlings. The single varieties, which will run wild if allowed, are less subject to this disease. Winter protection to the hollyhock must insure the absence of an excess of moisture about the crown of the plant, and yet some air about the leaves.

But with these I must close. When our border is established, and when by interested care we have begun to realize the pleasures of the cultivation of the hardy garden flowers, we will become experimenters, who will try everything offered, to the limits of space and purse, and soon no good thing, and certainly none of the best things, suited to our circumstances or locality will be unknown to us. Our neighbor will remark, with mild pity at first, our successful attempts, will accept our offered nosegays and finally our surplus plants, possibly will beautify his own grounds, and thus one of the rewards of flower culture, the education of our neighbor, will come to us.

THIRD DAY.

FRIDAY MORNING, December 11, 1896—9 o'clock.

Called to order by Pres. F. Wellhouse.

Prayer by Chaplain Burge.

A vote of thanks was extended to Chaplain Burge for his services during the meetings.

Resolution of condolence and greetings sent to Judge Houk, late president.*

Revision of fruit list, concluded:

WILLIAM CUTTER: "The Sneed peach has not yet been tried in this state. They come to us recommended by good authority on peaches. It is claimed that they are 10 days earlier than all others. The Greensboro and Triumph are better than the Alexander, Arkansas Traveler, or Amsden. The Bokara No. 3 is the hardest peach known. I think it well to consider them for trial. They are not well enough known to put on the list. I think they should be tried."

F. HOLSINGER; "The Crosby has nine votes on that list. While a hardy

* NOTE.—Ex-President Houk is very sick in Chicago, Ill.

peach, it is so small. I cannot see why it received so many votes. It may induce some one to plant it and [I think] be of no value to them. Of the early peaches, I am glad to know we may get something new. It is claimed the Sneed has merit."

E. J. HOLMAN: "The Crosby is a peach of great merit. It bears among the youngest. I have a number of trees in fruit this year. Its habit is to overbear, which diminishes its size. There is not a peach on the list of such luscious quality. The Elberta cannot touch it. It is not as hardy as it might be, yet is hardier than the Crawford."

A. CHANDLER: "I tried it to a limited extent this year. It is certainly a peach of very high character. All that has been said of it is true. It grows to be of fair size, and I think outranks the Elberta in quality [?]. I recommend it to planters. It ripens about September. It will bear fruit the second year from planting and is perhaps a week or ten days later than the Elberta."

JAMES SHARP: "My observation of the Crosby is the reverse of the above. This year 25 or 30 trees bore. They were of good size, but sour and of poor quality; nothing to compare with the Elberta."

J. W. ROBISON: "We have a new peach, called Kansas Early, resembling the Alexander in fruit and tree; fully as large, and of much better quality, ripening nearly 10 days later. It is the most productive early peach we have. Not of the highest quality, but it commands a good price in market."

F. HOLSINGER: "In making out our fruit list, the object is to secure not only larger size, higher color, and better flavor, but also to secure the varieties that are most hardy. The hardiest peach I know is Hill's Chili. In planting in Kansas, we should value hardiness above everything else." [?]

Following is the revised list, as completed:

PEACHES— ALL PURPOSES.

	Votes.		Votes.
Elberta.....	17	Mountain Rose	2
Old Mixon Free.....	14	Amsden	2
Salway.....	13	Crawford's Late.....	2
Smock.....	11	Wonderful	2
Champion.....	10	Waterloo	1
Alexander	9	Beatrice.....	1
Stump the World.....	9	Honest John.....	1
Crosby	9	Governor Briggs.....	1
Heath Cling.....	7	Chair's Choice.....	1
Family Favorite.....	5	Lemon Cling	1
Troth's.....	4	Indian.....	1
Hale's Early.....	4	White Rose	1
York Early.....	3	Cooper's Late.....	1
Reeves' Favorite	3	Snow	1
Old Mixon Cling.....	3	Governor Garland.....	1
Foster.....	3	Hill's Chili.....	1
Crawford's Early	3	Early Rivers.....	1
Ward's Late.....	3	Democrat.....	1

A vote of thanks was given the Shawnee County Horticultural Society for the beautiful souvenir badges worn by us.

AFTERNOON SESSION, December 11, 1896—1:30 P. M.

Called to order by President.

Revision of fruit manual was referred to the executive committee, with instructions to report at the next annual meeting.

Report of Acting Secretary William H. Barnes, for fiscal year ending July 1, 1896, was read, as follows:

FINANCIAL REPORT.

For the fiscal year ending July 1, 1896.

Appropriation for salary of secretary	\$800 00	
Amount expended.....		\$800 00
Appropriation for freight	\$35 00	
Amount expended.....		\$34 50
Reverted to treasury		50
Appropriation for expenses of executive board	\$100 00	
Expended for railroad fares and board on the road		\$72 00
Expense for stenographer (at state meeting).....	25 00	
Expense for typewriting.....		2 50
Appropriation for traveling expenses of secretary.....	\$100 00	
Amount expended.....		\$100 00
Appropriation for postage	\$200 00	
Amount expended.....		\$200 00
Appropriation for express on reports.....	\$200 00	
Amount expended.....		\$42 04
Reverted to the treasury		157 96
Total state appropriations	\$1,435 00	
Total amount expended		\$1,276 54
Reverted to state treasury		158 46
Total.....		\$1,435 00

WILLIAM H. BARNES, *Acting Secretary.*

Correct, and approved:

GEO. M. MUNGER,
S. C. MASON,
G. W. BAILEY,
} Committee.

MEMBERSHIP FUND.

No. 1. A. Oberndorf, Centralia.....	\$1 00
2. John Wiswell, Columbus.....	1 00
3. S. Lampman, Baldwin.....	1 00
4. J. A. Thompson, Edwardsville.....	1 00
5. G. W. Maffet, Lawrence.....	1 00
6. D. L. Haines, Edwardsville.....	1 00
7. Isaac Wyant, Severy.....	1 00
8. Philip Lux, Topeka.....	1 00
9. N. P. Deming, Lawrence.....	1 00
10. T. A. Stanley, Osawatomie.....	1 00
11. A. E. Dickinson, Meriden.....	1 00
12. F. C. Sears, Manhattan.....	1 00
13. W. C. Edwards, Topeka.....	1 00
14. W. E. Barnes, Vinland.....	1 00
15. H. H. Kern, Bonner Springs.....	1 00
16. G. F. Espenlaub, Rosedale.....	1 00
17. W. J. Cook, Lawrence.....	1 00
18. Jas. McNicol, Lost Springs.....	1 00
19. C. H. Sternberg, Lawrence.....	1 00
20. A. H. Griesa, Lawrence.....	1 00
21. Edwin Taylor, Edwardsville.....	1 00
22. Sam Kimble, Manhattan.....	1 00
23. A. Chandler, Argentine.....	1 00
24. J. W. Robison, El Dorado.....	1 00
25. Fred. Eason, Lansing.....	1 00
26. G. M. Munger, Eureka.....	1 00
27. W. S. Schell, Wichita.....	1 00
28. Col. E. Harrington, Baker.....	1 00
29. D. M. Shields, Garnett.....	1 00

No. 30. F. H. Burnett, Benedict.....	\$1 00
31. C. D. Martindale, Scranton.....	2 50
32. J. F. Cecil, North Topeka.....	2 50
33. C. M. Irwin, Wichita.....	2 50
34. J. A. Bowers, Sabetha.....	<u>1 00</u>
Turned over to treasurer.....	\$38 50

This list only includes up to this meeting.

THE TREASURER'S REPORT.

Treasurer Frank Holsinger reported as follows: "There was in my hands \$101.50, out of which I have paid \$32.70 to the president [for typewriter], leaving a balance of \$68.80."

Paper on "Pear Culture" was read, and is as follows:

PEAR CULTURE.

By B. F. Smith, of Lawrence, Kan.

One of the finest fruits grown in our country is the pear. The tree is an ornament in any place—on the farm, on the lawn, or in the garden. We are probably more indebted to France for the great variety of pears found in the fruit calendar than to any other European country. From France came our mammoth Duchesse de Angouleme, our buttery Beurre de Anjou, and handsome Beurre Clairgeau. Our famous Bartlett came from England. But for quality and superior excellence, the American Seckel, which originated near Philadelphia, towers above all other pears.

Soil for Pears.—It does not require a rich, highly fertilized soil for growing pears. Any soil that will grow an average crop of corn or potatoes will grow pear trees. I have been informed that in the great pear-growing districts of California their best crops are grown on alkali soil. Hence, I feel safe in recommending any kind of soil in Kansas for pear growing, excepting possibly our rich-bottom lands. The pear orchard should not be planted on new prairie or blue-grass sod lands, but on lands that have been well cultivated in some kind of farm crops. Late in the fall or early winter the ground should be well and deeply broken, and if possible subsoiled. In some parts of the East fall planting is recommended, but in Kansas I prefer the spring for planting all kinds of trees.

Planting Trees.—Standard trees should be set in rows from 16 to 18 feet apart, and 16 feet apart in the row. Holes should be dug large enough for the roots to have plenty of well-pulverized soil in which to start growth. If the season is dry, water should be poured into the hole when the tree is half set. Dwarf pear trees should be planted 10 x 12 or 12 x 12 feet. The trees should be set about two inches deeper than the union of the pear to the quince stock, as the quince is liable to depredations by borers.

Cultivation.—Some kinds of hoed crops should be grown in the orchard. Potatoes, rutabagas or strawberries may be grown among pear trees three or four years without any hindrance to their growth. Cultivation should be discontinued at the end of the fourth or fifth year, after which the orchard may be grown to clover, timothy, or other grass to check pear blight. After cultivation is stopped, old wheat straw or strawy horse manure thrown over the ground between the trees will be good food for the roots of the trees (and fruit) when of bearing age.

Pruning.—From a third to half of each season's growth should be cut back the last of February, or not later than the 20th of March, in this latitude. This practice should be adhered to for at least five years, so that the trees may grow

symmetrical. If one has the time in the growing season, the tender branches can be pinched off and others so directed that the tree may look as though it had a guiding hand to assist nature in its development.

Varieties to Plant.—In looking over the fruit calendars, one becomes bewildered at the array of varieties recommended for their superior qualities. But, like the list of profitable apples, or small fruits, there are but few sorts that are profitable to grow for market purposes. It is well for the man growing pears for pleasure, or for experimental purposes, to test many varieties. The Bartlett is probably the best known of any sort grown in our country, but in our state it rarely escapes blight. Sometimes it takes the whole tree in one season; then again half the tree is taken; and frequently only a branch or two are left. Every Bartlett that I have planted the past six years blighted this year. Hence, I would warn those going into pear growing for market to plant few Bartletts. My experience with pears is limited to 12 varieties: Duchesse de Angouleme, Seckel, Beurre de Anjou, Sheldon, Lawrence, Bartlett, Winter Nelis, Beurre Clairegeau, Louise Bonne de Jersey, Howell, White Doyenne, and Buffum. The above list contains some of the very best in quality, and some that I would not plant, except to have variety. My selection from this list, after nine years of fruiting, would be: First, Seckel; the Duchesse de Angouleme, Beurre de Anjou, Sheldon, Beurre Clairegeau. These have been my most profitable pears. In nine fruiting years there has never been an entire failure of Seckel; but there have been two failures of Beurre de Anjou, two of Duchesse de Angouleme, three of Sheldon, and three of Beurre Clairegeau. The Tyson is a good early pear, but it is the most unprofitable bearer, considering that it takes 15 years for it to come into bearing, and then it will only bear every four years.

Commercial Pear Growing.—The climate and soil of California are doubtless the best adapted to pear growing of any in the world. California pears are about as near perfect as one can imagine, in size and color. But while the fruit is so well developed, it is flat in taste, lacking the sweetness that is found in our Kansas or Missouri pears. Owing to the better quality of our pears, they are sought after, while they last, in Topeka and Kansas City, even when not as attractive in appearance, at prices about equal to the California product. But for commercial pear growing we are not in it yet; though, when we come to know the varieties that will succeed in our soil, and when the care and pains are bestowed in preparing our fruit as they do there, we will know more about commercial pear growing. A commercial pear orchard should not contain over four varieties, and the planter should not plant less than 200 or 300 of each kind. It is much less trouble to find a market for 50 or 100 barrels of one sort than it is for 10 barrels of 10 different varieties.

Pear Blight.—It only takes two words to express all the dread and fear there is about pear growing. Were it not for this terrible scourge, there would be thousands and millions of pear trees grown in the eastern and middle western states where there are none now. Pear blight means death in the pear orchard, or to the beautiful tree on the lawn or in the garden. Scientists and expert fruit-growers of large experience have sought to find out the cause, without success. It generally makes its appearance about the fourth or fifth year after the trees are planted, when in the most vigorous state of growth. It is first observed by a few black leaves on some of the tenderest branches. It comes suddenly—almost like a stroke of lightning. Hence, I have been led to believe that it is brought about by some kind of electrical disturbance, instead of a parasite. I am fully aware that the horticultural societies have very nearly discarded this subject at their meetings; but a paper on pear culture would hardly be complete without

some allusion to it, for it is as sure as death, and needs to be kept in remembrance by all who would plant pears. There are some varieties that are less disturbed by it than others, and those most liable should be avoided. I have in my mind a remedy for dealing with blight that will be tried on a young orchard that was planted last spring. The treatment I expect to administer is to give a few trees a good thrashing—that is, a bruising of the bark and pinching out the buds of the most sappy branches—at the time in the growing season when it usually appears. By giving the tree a good bruising, it will doubtless check the flow of sap, and the tree may produce fruit buds instead of blight. It is well known that when the life of a fruit tree is endangered by insects, wind, or otherwise, it will often bear an abundant crop the very last year of its life.

Picking and Marketing the Crop.—In the beginning, one should have movable tables about four feet wide and six or seven feet long for assorting the fruit. The barrels and boxes are arranged about the tables. After the first three layers are set in the barrels, pears may be poured in from the basket, after assorting. If tables are not at hand, they may be assorted at some grassy place under the trees. Drop-handle half-bushel baskets should be provided. This year I bought one dozen new baskets, and lined them with heavy duck or tent cloth to prevent bruising. It costs little to line a basket, and it will pay 10 times over the expense of it in the better handling of the fruit for even one season. My pears go direct from the orchard to market, or cold-storage rooms in the city. I have invariably lost money when I carted the fruit to a cellar for assorting and keeping till the pears ripened or colored yellow; in waiting for the ripening process, much loss from rotting came with it. There is no question but what it would pay apple packers to use duck-lined baskets in picking all their apples, using all possible care in handling this tender fruit.

PEAR CULTURE.

By L. D. Dobbs, of Garnett, Kan.

The complaint is made that it does not pay to grow pears in Kansas, on account of blight; this is true to a great extent, and yet can be overcome by planting a few varieties that have proved themselves well adapted to this section. At the head of the list I would put the Kieffer. I have very carefully observed this pear for the past two years and found but one blighted tree. Two miles north of Harris, Mr. John Fay planted a block of 12 pear trees of four different varieties, consisting of the Bartlett, LeConte, and I think one other variety, and three Kieffer. Last year every tree blighted except the Kieffers, and they were all heavily loaded with fruit, some of them having over a bushel of pears and not a blighted twig.

The Kieffer has been praised by some and at the same time pronounced a humbug by others more than any other pear. If left on the tree until fully ripe it is one of the hardest, dryest and most tasteless pears grown, but if picked early in September, and slowly ripened in a dark room, it is of a most juicy, sprightly, sub-acid, delightful, aromatic flavor, excelled by none and equaled by very few. Jas. Wall, living near Richmond, in Franklin county, had several Kieffer pear trees in bearing when I visited his orchard last year, early in September, some of which I carefully measured and found 15½ inches in circumference. If you want them for Christmas keep them in a cool, dark cellar. If wanted for a dessert fruit in late October, or Thanksgiving in November, place them in a warmer room, but keep from wind and sun.

There is no pear that ships better or sells better in the market if proper care

is taken in picking them. While I have only experienced and tested this pear as a choice dessert fruit, the *Rural New Yorker* claims for it many virtues. "It makes excellent Kieffer cider, vinegar, wine, champagne, sauce, pie, baked Kieffer, and sliced Kieffer with sugar and cream. White Kieffer syrup for buckwheat cakes is unsurpassed," saying nothing of their well-known virtues for canning, preserves, and dessert, and its cooking qualities when picked at the right time. Care should be taken not to pick them before fully matured. The best test that I know is to raise the pear when it appears matured, early in September, and if the stem snaps off where it joins the limb it is ready to pick, but do not pull it so as to break the twig or the limb to which the stem is attached. If the stem does not break square off by a gentle pull to one side, leave it on the tree a few days longer.

Another great advantage for the Kieffer is its early bearing. Trees usually begin to bear three years from the time they are set out from the nursery row and will bear large crops when all others fail.

One objection to the Kieffer is its lack of pollen for fertilizing itself; but that is easily obviated by planting the Garber or Duchesse de Angouleme near it. The Garber is probably the best for this purpose, as it blooms with the Kieffer, is perhaps as free from blight as the Kieffer, and bears equally young and regular. The Garber has not been planted extensively in this section, but where it has been tested in the West accounts are as favorable to its longevity and freedom from blight as the Kieffer. It is not quite so large, ripens about three weeks before the Kieffer, and matures to a very delicious pear if left on the tree until fully ripe; but it is better if picked when fully matured and slowly ripened in a room free from sun and wind.

The Duchesse d'Angouleme is a very large and popular pear, and succeeds admirably in this section. I have much better reports of it as a dwarf than as a standard. The Kieffer and Garber are best as standards, and will bear almost as soon after planting in the orchard as any dwarf. Mr. A. G. Jamison, living northeast of Richmond, showed me in November a Duchesse in his front yard from which he picked 65 pears averaging from 13 to 14 inches in circumference; and this was not a very good year for pears either. The tree was about five years old and seven feet high, and had to be tied and propped to hold up its load of fruit.

The LeConte is a delicious pear in the South, but does no good here. If people will plant these three pears: the Kieffer and Garber, as standards, and the Duchesse de Angouleme as a dwarf, and take a little care in picking the fruit at the proper time, I see no reason why we cannot have as good pears in Kansas as any other section of the union.

The Bartlett is a delicious early pear, but unfortunately, like many others, is subject to blight here.

One thing more may not be amiss to add here. The first claim made for every new pear by salesmen is, that it is "absolutely blight proof." This claim is made to enable them to dispose of their stock at fabulous prices, and the planter has no means of finding out that it will blight until he has tried it—to his sorrow. There is no pear grown that is absolutely blight proof, but the Kieffer and Garber are as nearly so as it is possible for any pear to be, and the Duchesse de Angouleme is the best and surest of any as a dwarf; and they do not cost more than other trees. They are grown largely in all responsible nurseries and sold at the same price as other pears.

T. W. HARRISON: "Both these papers refer to blight, but give no remedy. I would like a remedy."

B. F. SMITH: "I think blight is owing to electrical disturbances. I have found no remedy."

G. W. BAILEY: "In an article, I think in one of this Society's reports, L. J. Bailey, of New York, claims that the cause of blight is microbes. Under a powerful microscope, he says, you can see thousands in new wood. I have some 400 to 500 pear trees, and I have given them the worst of pruning, three or four times in a season, checking the growth of wood. I have had an abundance of fruit, when the season was not too dry. I have escaped pear blight until this year. Now a portion of the trees are badly damaged. I know no remedy."

F. HOLINGER: "As to electrical disturbances, I would ask Mr. Smith, how is it that other varieties of pears growing alongside of the Kieffer are blighted and the Kieffer not? In 1,000 trees I never saw blight on the Kieffer. Electrical disturbances should affect all alike. Perhaps Professor Mason can give us light on this. A most successful pear raiser lives near Kansas City. For 50 years his trees have not been affected; he has saved them; with a spade he cuts one-fourth of a circle around the tree, three or four feet from it; he fills these trenches with liquid from the cesspool. The next year he does a similar thing. He is a reliable and trustworthy gentleman. He asked me to try it. If any of you try it and are successful, please report."

DR. J. STAYMAN: "I have had experience with pear blight and used this prescription 34 years ago, in Illinois. An editor in Philadelphia advocated grass sod. I have some Duchesse de Angouleme pears that have never blighted. I never cultivated them but just let them alone. I read the horticultural papers of the United States, and have never found a remedy; it is useless to discuss a cure for pear blight. I went with a committee and examined many orchards, and found blight in all. The best was a 3,000-tree orchard with little blight on them. I have discovered nothing to satisfy me. I believe there is no remedy. It is thought to go in streaks; I believe it will gradually pass away."

T. A. STANLEY: "I had a pear tree that for 10 or 12 years never blossomed. I slashed it with my knife, obstructing the flow of sap. I hacked all the main limbs, and waited for results. The following year it bloomed, but no pears. I kept on and got more blooms and some fruit. A year ago it bloomed full, and the pears grew to about the size of my thumb; then blighted and fell. To-day the tree is dead."

J. W. WILLIAMS: "When I moved to Holton six years ago, I bought property that had four or five pear trees on it, as badly blighted as I ever saw. Instead of pruning the roots, I dug the earth away down to them, and put in iron and salt, and covered it up. They grew well the following year and became perfectly healthy. One limb on a Kieffer started out with blight. I cut it off. I have an idea it is a good thing to top pear trees. I have no Bartletts bearing well."

T. W. HARRISON: "There is probably more money in growing pears than any other fruit. Pear blight is a serious thing. I do not cut off the blighted limb and burn it, but burn it on the tree. I use a kerosene lamp or flambeau torch. This I think is the best way. A neighbor told me he prevented blight by digging the ground from the roots. A remedy for pear blight would be a great thing for pear culture."

A. B. SMITH: "If we can find the cause, perhaps we can reach out for a remedy. So long as the tree grows vigorously there is little danger of blighting."

J. W. ROBISON: "This old perennial question comes up every year. He found

first it was a microbe. He undertook to destroy it, and found that killing the blight was an impossibility. He turned his attention to a preventive. He took an ordinary vaccinating needle, and commenced inoculation from diseased limbs to healthy limbs. He found that a large percentage of the limbs 'took,' as the doctors say; 80 per cent. of all the varieties that were subject to blight 'took,' but a number did not take. He came to the conclusion that the tree crickets carried the virus from tree to tree. He used to cut the trees and burn them. With all his experience he had been unable to find a preventive. It is the spreading of this germ that causes the trouble, but if we destroy the germ we destroy the tree."

E. J. HOLMAN: "What effect will top-grafting have on yearling trees of varieties known as vigorous, thrifty growers?"

DR. J. STAYMAN: "You can graft a Concord grape, and it will be as strong on there in 20 years as if it had been there originally. Everybody knows that apple trees have a peculiar formation of root. The top influences the root."

A. L. BROOKE: "If you rootgraft, it seems that the root partakes of the nature of the top."

PRESIDENT WELLHOUSE: "Some 20 years ago I experimented successfully in that direction, and found in root grafts that the top controlled the future growth of roots; that is, if we took a certain variety of roots and grafted Winesap on those roots, we would have Winesap roots uniformly, and the nurserymen here know if you graft Ben Davis on all kinds of roots you will have Ben Davis roots as well as tops. I commenced by top-grafting a row four inches above the ground; then I grafted another row, 8 or 12 inches, and so on, and I found the farther I got from the ground the less control the top had over the roots. When I started at the ground, the graft placed where the top had been had entire control of the roots. The further you graft above the roots, the less influence the graft has. I followed this up for three or four years, commencing with large roots and short scions, also with large, long scions and short roots, and my conclusion is, the further you graft from the ground the less influence the scion has on the root."

QUESTION: *Does it affect the fruit?*

PRESIDENT WELLHOUSE: "I could see no difference in the character of the fruit. I only worked on Winesap, Ben Davis, Missouri Pippin, and Jonathan. I experimented on those four varieties only. My object was to determine whether I wanted root-grafting or top-grafting."

J. W. ROBISON: "The experimental and horticultural stations in Minnesota have tried thoroughly, with the object of getting a better apple on hardy stock. They thought it better to leave some of the roots of the hardy stock. The Jonathan is one they particularly worked on. The bark would freeze and slough off."

DR. J. STAYMAN: "In Iowa I saw an orchard grafted on hardy stock four feet from the roots. They say this is the only way to grow trees north, where they have severe winters. I believe top-grafting has no effect on the body of the tree."

J. W. WILLIAMS: "I think the president has answered the question. I have had trouble to get Missouri Pippin and Winesaps to grow upright. I suppose the reason is root-grafting. If I should plant another orchard, I should take the president's advice. Some 15 or 20 years ago I tried to make Winesaps and Missouri Pippins grow upright. I propped and tied them up, but the wind blew them over."

A. L. ENTSINGER: "I have grafted a great deal on all varieties of fruit. Doctor Stayman gives my idea on grapes; that if you graft the tender on the hardy roots you will succeed every time. I use the Mariana plum stock for grafting; it is such a strong grower. When you graft, leave some of the lower

branches to encourage a flow of sap. The same in the apple tree. I have double worked the apple, plum, and others. I have often used the Ben Davis as a root stock, and then top work on Ben Davis to get a strong tree. If you leave some limbs of the Ben Davis to grow it will help the top make up the deficiency of a slow grower."

J. F. CECIL: "How long have you used the Mariana for stock?"

A. L. ENTSINGER: "Ten or twelve years."

J. F. CECIL: "Do you know that any one else has used it?"

A. L. ENTSINGER: "I was the first to use it that I know of. There are men in this state who advocate the use of apricots on plums."

A. L. BROOK: "I had Mariana stocks and put the Abundance plum on them. The graft was killed."

A. L. ENTSINGER: "I have the first tree to die that I know of, and can show 100 of them."

Dr. J. STAYMAN: "The fruit-growers of Kansas will soon have to revert to top-grafting; the sooner the better."

T. W. HARRISON: "I wish to inquire about June buds, referring especially to peaches and pears."

WILLIAM CUTTER: "A June bud of $2\frac{1}{2}$ to 3 feet is better than a six-foot tree, because a six-foot tree ought to be cut down. If higher than this they split off."

A. L. ENTSINGER: "I received some 30 June buds in variety by mail to test. The first season they made trees from $2\frac{1}{2}$ to 3 feet high. Out of 32 varieties I lost one, after it had grown about a foot."

F. W. DIXON: "My experience is that June buds are good. I do not care if they are not over a foot high; they will make fine trees. Some of the nurseries offer peaches "in bud" as low as \$12.50 a thousand. I can buy trees much cheaper than I can bud them. The way to fertilize them is to use the hoe, and thus save your peaches, and get a good tree."

E. A. POPENOE [exhibiting some twigs gnawed by the buffalo tree-hopper]: "Where trees are grown in grass or weeds, you will find this kind of work. I have never seen such work where the orchard is kept clean. The work as seen here is about as it appears at the close of the season. They begin their work in August. The female climbs among the twigs and bores into the tender places. She deposits six or eight eggs. The eggs remain until the following spring, when they hatch. The insect is about the size of a beechnut or grain of buckwheat, green in color, with four wings, and when they fly they make a slight buzzing noise. Keep the orchard free from grass and weeds and they cannot thrive."

F. HOLINGER: "What is the best method of destroying aphid on apple roots?"

E. A. POPENOE: "It is rather difficult to add anything new to what we have already said. We examined many trees for aphid. The aphid is worst where surface cultivation is omitted. We find it can be destroyed by shallow surface cultivation. Continued cultivation keeps the surface roots down. They are much less destructive if the ground is kept cultivated."

F. HOLINGER: "How long does it take for them to run their race?"

E. A. POPENOE: "There are several broods during each season, and they keep coming. I find them worst in moist seasons. It is easy to destroy them on a tree above ground. They do the most damage on the roots. Any alkali is valuable. Where ashes are difficult to obtain they are not much used."

T. A. STANLEY: "A number of years ago I found that ashes would kill aphid."

I was advised to put ashes in the hole when I set out a tree. I tried it and killed the aphis."

A. L. BROOKE: "In the nursery business we find that the presence of aphis depends more on the condition of the weather than anything else, and I am sorry to add that my experience somewhat refutes what the professor says about getting on new ground. My experience has been, that so long as I grow my apple seedlings on old ground I get good roots, clear of aphis. There is one objection to the clean ground. It gets too light after awhile. You have got to get rid of rubbish, which is more favorable to aphis, if other conditions are right, than anything else. If the tree is not in a certain condition, they will leave it. Some two-year-old trees were infested with aphis, and I took them up. We make a practice of burning every tree with aphis on it."

E. A. POPENOE: "I would like to ask if yearling trees in new ground are infested? I can easily see how two-year-old trees might be infested. We should pay no attention to aphis entering trees, and plant them without regard to their knots. Another question: Can you explain why they left two-year-old trees?"

A. L. BROOKE: "I used to think aphis worked the most in wet weather, but since then I think they are worst in dry times. So have come to the conclusion that I know little about it."

F. HOLSINGER: "While I would not buy an aphis-infested tree, yet if I had one infested I would plant it. I will qualify that by what I know. I planted 12,000 apple-trees that were badly infested with aphis. They were so badly infested they had no roots. We had these trees and had no others to put in their places. Many had no roots at all. We went ahead and planted them, and they grew right along, and to-day comprise the best orchard on the farm. The root aphis will appear and disappear in two years. Deming's orchard was badly infested with aphis. He was afraid he would lose it. I think the aphis the worst of all the insects we have."

E. A. POPENOE: "If we are likely to get the San José scale by trees imported from other localities, we may continue to expect to get it. I believe that, so far as the risks from importation are concerned, we are in no more danger of that insect than of others. In my mind, the best way to keep the scale out of the state is to keep the people alive as to the possibility of its destruction. I know of no better way to do this than to keep before the people all the necessary information as to its form, and the food plants of this scale, so they may detect it when it appears. If this information is known, and the appearance it makes on trees, and if these facts are kept before us, it seems to me we would be likely to suffer little from it in any way. We are threatened with the importation of other insects. We have had to contend with bark-lice heretofore, but so far they have done no damage, because we have been on the lookout. Badly infested branches of the oyster-shell bark-louse from Kansas orchards have been sent me. It has made little headway in Kansas. I have heard nothing of it for several years."

G. M. MUNGER: "Do I understand the San José scale is in Kansas?"

E. A. POPENOE: "No, sir."

A MEMBER: "I would like Mr. Popenoe to explain what the San José scale is like."

E. A. POPENOE: "Agricultural literature has been filled with it, and it is well illustrated in pamphlets from Washington, which may be had for the asking of the authorities at Washington. The San José scale affects the trees differently from other insects. It creates a different color. It is carried on the fruit, and may be introduced to other fruits by being on the peelings thrown out. It is very different in shape from the oyster-shell bark-louse."

REPORT OF COMMITTEE ON EXHIBITED ARTICLES.

We, your committee on exhibited articles, beg leave to report the following fruits on the tables: By Doctor Stayman, of Leavenworth, five varieties of apples, among them the Albemarle and Gano. By William Cutter, of Junction City, five varieties of apples, one (the Spohr) a very promising seedling from Manhattan. By B. F. Smith, of Lawrence, four plates of autumn pears from cold storage, all in fine condition. By E. J. Holman, of Leavenworth, a plate of Japan chestnuts, very fine. The acting secretary of the State Society placed on exhibition about 200 plates of apples, all kept in cold storage since last fall, all the winter and many of the summer and fall varieties being in fair condition.

WILLIAM CUTTER, *Chairman.*

The following paper was then read:

SMALL FRUITS—NOTES ON NEW VARIETIES.

By J. F. Cecil, of North Topeka, Kan.

“To study and report on new varieties and new methods of planting, growing, harvesting and marketing all small fruits.” Such are the words of instruction to our committee from our efficient acting secretary. A certain wise man has said there is no “new” thing under the sun; but it is evident that the aforesaid wise man had not seen some of the modern nursery catalogues, and I am prompted to proceed with a report on some new things. Among the strawberries, I mention the following as not widely disseminated, or of recent introduction:

Annie Laurie.—Origin, Ohio; fruit of good size and quality; plant large and fine, but after one season’s trial I cannot recommend it for productiveness.

Beverly.—Origin, Massachusetts; came to me from Mr. Crawford, of Ohio, who says, “one of the few berries that proved to be all that was claimed for it.” With me it has proven of little value, and after two or three years’ trial I discarded it.

Brandywine.—Origin, Pennsylvania; fruit large, firm, and moderately productive, and does not set so many plants as to need trimming, which is an essential characteristic for the production of fine fruit.

Gardner.—Origin, Mitchell county, Iowa. This is of the Crescent type, fruit firmer and larger; perfect blossom, but one season’s trial does not show it to be productive enough.

Greenville.—Origin, Ohio. This variety seems to be an improved Bubach, in that it is firmer, more productive, and a better plant maker. So far I cannot tell whether it is of any better quality or not.

Marshall.—Origin, Massachusetts. Very large in plant and berry and like some of the preceding varieties. It may not be on suitable ground to bring out its best in productiveness. It is worthy of further trial.

Woolverton.—Origin, Canada. This produced some fine fruit, but I have discarded it for non-productiveness.

Raspberries.

Eureka.—An early blackcap, of large size, strong in growth, and is to be recommended for general planting.

Gault.—A so-called everbearing blackcap, but yields so readily to anthracnose that I have not been able to get it to a bearing state after three-years trial.

Kansas.—Is an excellent variety, growing in favor as the returns of each succeeding crop are considered.

Miller’s Red.—Origin, New Jersey. Shaped like the Turner, and about the same color, but much larger in size; very firm for a red raspberry; quality good. Plant a strong grower, but late this season I think I see evidence of anthracnose.

London.—Origin, Wisconsin. Fruit very large, and shaped like the Cuthbert, and is the best-flavored raspberry I have ever tasted. With me it has had but one season's trial, and one serious fault seemed to present itself, viz.: if left on the bushes a few hours after maturing the side of the berry is badly burned. The plant is an exceptionally fine one.

Columbian.—A purple berry, of the Shaffer type. It is the strongest grower of the 25 or 30 varieties I have cultivated. At this time is in apparent good condition. A few berries that were produced were obtuse, conical, and fairly good quality.

Golden Queen.—Of a rich golden color, fine in quality; the best of yellow varieties.

Caroline.—A yellow variety, of little value.

Blackberries.

Drought and the orange rust still continue to be the prevailing hindrances to the successful general culture of the blackberry, but there are specialists who, by fortunate selection of sites or varieties, or by practicing superior methods of culture, have, for a few years past, kept our markets plentifully supplied with this luscious fruit, from the ripening of the Early Harvest, with its medium-sized, moderately good, abundant crop of berries, through the season of Snyder, Taylor, and Kittatinny, the last-named being the finest in appearance and commanding highest prices, but is the most susceptible to the rust.

Eldorado.—This has fruited with me but one season; is large, good flavor, canes hardy; ripens with Snyder or later.

Currants.

North Star.—Plant a fine grower, but is less productive than the Red Dutch, which I still consider our most profitable variety. My experience and observations of the past two years confirm my former conclusions that currants need a cool, heavy soil and a partial shade for paying crops.

Gooseberries.

Pearl.—I have had it but one season. It is a good grower in spite of the mildew that covered it a part of the summer.

Red Jacket.—Made a slower growth than the above but was entirely free from mildew, which may be attributed to a more favorable location.

Methods.

Three or four years ago I found it desirable to plow in February a piece of ground partly covered by Parker-Earle strawberry plants. To save these we carefully took them up and "heeled down." In the latter part of April we found them in excellent condition for setting. They had thrown out numerous white roots, and being careful to protect from sun and wind while planting, we had an almost perfect stand. Since then we have tried the same experiment each season with the same results.

A year or two ago I saw a report from Mr. L. J. Farmer, Pulaski, N. Y., of his experiment along this same line, to which he applied the term "new horticulture." Also, less than a week ago I met one of the most successful small-fruit growers of our country. He told me he had been preparing his strawberry plants for spring planting by taking them up and "heeling down." I asked, "Are you not taking a new departure?" He replied, "No; I have done this before and find it pays."

Transplanting Raspberries.

It is a common remark by small-fruit growers, "that the blackcap raspberries fail in transplanting oftener than any other fruit we have to plant." This may be avoided by using transplanted stock when only a few are to be set; or when large numbers are to be planted they may be propagated close to the proposed plantation, and a little dirt spaded up with each plant and thus carted along the rows.

Also, sucker plants of the red varieties, and of blackberries, will be enhanced in value if set in nursery rows and cultivated for one season before setting in fruit beds; but a better plan is to propagate these from root cuttings.

SUBSOILING VS. IRRIGATION.

By G. W. Bailey, of Wellington.

In what little I may be able to say on the above proposition, I do not wish to be understood as claiming that it will pay to subsoil all kinds of soils, or that subsoiling is preferable to irrigation under all conditions.

The statement I wish to make, and believe to be true, is this: That in a large part of Kansas there is annually sufficient rainfall, if properly utilized, for the perfection of trees and all kinds of vegetable growth. If this moisture can be held in the soil (instead of allowing it to run off into the sloughs, creeks, and rivers), by a small amount of money spent in subsoiling, as compared with an expensive system of irrigation, why should we irrigate? Why not try subsoiling? The expense, aside from the labor employed in subsoiling, is small.

All farmers, fruit-growers and gardeners can subsoil, while but few are able to irrigate. All land, except that with a sandy or gravelly subsoil, will pay to subsoil. The amount of land with a gravelly or sandy subsoil is not very large in Sumner and adjoining counties. Where the rainfall is insufficient, as in Colorado and the western part of our own state, irrigation has been successfully practiced. Especially is this true in Colorado, where the cost is small. Their supply of water comes from the mountains; their greatest expense is the ditches for conveying water onto the land. Very little expense is required afterward for repairs. The same is true of the great system of irrigation taken from the Arkansas river in our own state. The farmers and those using water along this system, I understand, are charged \$1.25 per acre annually.

If the farmers and fruit-growers of this part of Kansas could irrigate their land at the above cost, or twice, or even three times, the amount, then it would pay them to irrigate; but from personal experience and observation I am led to the conclusion that irrigation for this part of Kansas is out of the question. From experience in a small way in irrigating for the past 10 years with an ordinary 10-foot windmill, about a 150-barrel tank, 1,000 feet of water-pipe, and 200 feet of hose, I have been able to irrigate but a very small amount of ground in any one season, and some seasons the result was anything but encouraging. One or two years ago, previous to the past summer, the ground and especially the subsoil being very dry, the weather very hot—from 90 to 100 degrees—in applying the water as usual between the rows of vegetables, the atmosphere so hot and all the surrounding surface so dry, it seemed to cook or scald the vegetables, tomatoes being injured less than any other kind. The present season, with the assistance of the rainfall, we have had more and better vegetables than for several years past.

My experience and observation in subsoiling have been in the two past years. About two years ago Prof. H. R. Hilton, of Topeka, delivered an address on

"Soil Moisture," in Wellington. Many of the farmers of Sumner county heard him and have, as a result, been trying subsoiling to some extent. All, as far as I have been able to learn, report a yield of from 5 to 10 bushels of corn more per acre than from ground not subsoiled, and that, too, while the implement used was in many cases very rude and not capable of doing the work properly. Subsoiling as practiced and understood at present does not consist in turning the subsoil upon the surface, as I understand was the practice many years ago, but simply breaking up and loosening the subsoil as deep as possible, and *the deeper the better*, so that the water will readily pass from the surface to this loose subsoil, which acts as a reservoir, retaining the water for future use of the plants on the surface above. We have in the past had, in a very few hours, five inches or more of rainfall. With the subsoil thoroughly loosened 16 to 20 inches deep, none of the heaviest rainfall we ordinarily have will run off or remain on the surface very long after the rain is over, but will, as above stated, be held for the use of the plants on the surface.

Mr. President, I believe that had all the upland in Sumner county on which apple and other fruit trees were planted been thoroughly subsoiled to a depth of 20 inches, four-fifths of the trees that are dead or badly damaged by the past three years of dry weather would now be in a fair, healthy condition.

Subsoiling and irrigation combined for all kinds of fruit, gardening, and farming, where irrigation is possible, and not too expensive, should be the *modus operandi* of the fruit-grower and farmer of this part of Kansas.

EVENING SESSION, December 11, 1896 — 7:30 P. M.

The Society was called to order by President Wellhouse.

Music by the orchestra.

Paper by Geo. Richardson, of Leavenworth.

COLD STORAGE.

By Geo. Richardson, of Leavenworth, Kan.

It has been well said that "Necessity is the mother of invention." As cold storage of the present time is understood as "mechanical refrigeration," and in general, the preservation of perishable articles by means of low temperature, hence, the act of reducing the temperature of any body, or maintaining the same below the temperature of the atmosphere, is called refrigeration, or more familiarly known as cold storage, produced by the employment of machinery of various types. Of those mostly in use, are the compression system, using anhydrous ammonia as a refrigerant, by expanding the ammonia either directly through coils of pipe arranged in the storage rooms, or through coils of pipe that are submerged in salt brine, where the brine is reduced to a low temperature and then forced and circulated through pipes in the storage rooms, one being known as direct expansion, the other, brine circulation, but both accomplish same results.

To utilize anhydrous ammonia requires complicated and expensive machinery, and to those not acquainted with the subject it may seem strange that more units of heat are produced by the burning of coal, wood or oil than there are units of cold produced to reduce the temperature of storage rooms.

Of the uses and benefits of cold storage it can be truthfully stated that nothing in recent years has been of more direct benefit to the farmer, stock-raiser and fruit-grower. But a brief period has passed since cellars, caves and underground grottos served as the best means, and in a limited way under certain conditions of weather, for the protection and preservation of perishable articles.

To-day machinery has made it possible to control temperature at any degree and in all climates. The burning heat under the equator would not be an impediment to secure a zero temperature in a cold-storage room.

The construction and successful operation of the mammoth packing-houses are the outgrowth of the success of the application of mechanical refrigeration, where any day of the year a market is made for live stock. But few years have elapsed since the vast herds of South American cattle had no value, except for their hides, horns, and tallow, and the great bands of Australian sheep for their wool. Now immense refrigerating plants are in operation, freezing the beef and mutton, with fleets of ocean steamers equipped with refrigerating machinery and storage rooms filled with frozen meat for European markets. From the United States the dressed-beef traffic is of large proportions. Storage speculators are always ready buyers at remunerative prices for butter and eggs, that in value exceed the great wheat crop of America.

To fruit-growers, especially those engaged in apple culture, cold storage is attracting more than common interest, as it has been demonstrated a grand success in the preservation of apples from three to six months longer, in good condition, than in natural storage, that is subject to the changeable influences of the atmosphere. At the same time, the apples retain their original and individual flavor, color, and crispness.

Cold storage, or mechanical refrigeration, arrests fermentation and decay, or, better stated, prolongs the life and keeping qualities.

Of the advantages gained, it offers a place of safe-keeping for future market, and affords a protection for the grower if market conditions are not favorable; such as an overstocked market, consequently low prices, caused largely and influenced by many other varieties of fruit that are in season while the apple crop is being gathered.

Again, the fact of the existence of cold-storage houses has brought into the field speculators, which has a wholesome influence, and oftentimes strengthens the markets and lessens the quantity that would of necessity be forced to sell at an earlier period at a great sacrifice, which is the situation this year, where the enormous crops of New York, New England and Michigan apples are being sold at from 50 to 75 cents a barrel (including barrels) placed aboard cars, for the want of proper and sufficient storage facilities to relieve part of the burden. No such condition or low price has yet been felt by the western grower.

There may be years when the buyers will look so far into the future and think they can see visions of long prices, when it would be wise for the growers to sell, as there is some risk to be taken as to future markets being lower than prices in the fall, but such is not the rule.

From six years' experience with mechanical refrigeration and the storage of western-grown apples, there has not been a year but what a profit has been shown over and above the cost of storage, insurance, and minor incidental charges. One of the first to make the experiment, and who have been patrons of Ryan & Richardson's cold storage, at Leavenworth, since the plant was erected, were Wellhouse & Son, the largest apple growers in the United States, and the records show a net profit of from 50 cents a barrel, as the lowest of any year, to as high as \$1.50 other years. It is gratifying to state that, in all the years, not a single car-load was rejected when sold. Much of the success must be given credit to the grower who gathers his crop at the right time, in a careful manner, graded and packed according to the requirements of the trade. Then, if the cold storage to which he intrusts the care of his crop uses the same watchfulness as to necessary temperature, proper ventilation at the right time, the result usually will be gratifying and remunerative to both.

REPORT ON CALIFORNIA GRAPES.

By E. T. Daniels, of Hardtner, Kan.

In the spring of 1894 I received eight vines from my nephew, living in Fresno, Cal.; there were two vines each of Sultana, Purple Damascus, Muscat of Alexandra, and Thompson's Seedless; all grew very well considering the dry season.

In the fall after the leaves were shed I pruned them closely, and covered them with five or six inches of soil; they came out in the spring of 1895 all right, and one of the Muscats bore a few clusters of nice fruit, as did one Purple Damascus. This year they all fruited excepting one vine of the Sultana.

The Muscats were not as large in either cluster or berry as those grown in California; and, on account of the severe drought and intense heat, the fruit did not ripen perfectly. Thompson's Seedless ripened its fruit all right. This, to my taste, is the most delicious grape I ever ate. It is smaller in cluster and berry than the Muscat, and is almost transparent; color, pale yellowish, and without seeds. This variety is very short jointed, with hard wood, that ripens up within a few inches of the tips.

My brief experience seems to indicate that some of the California grapes may be grown here, by giving them good care, and a winter overcoat of a few inches of soil.

These vines were unfortunately planted on the most unfavorable place on the farm—almost a hard-pan. They have not been molested by insects more than vines of the Agawam, Brighton, and others of that class.

Music.

"Birds in Horticulture," an excellent lecture by Professor Dyche, of the State University.

This ended the thirtieth annual meeting of the Kansas State Horticultural Society.

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